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USSR Report

CONSTRUCTION AND RELATED INDUSTRIES

No. 85

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CONSTRUCTION MACHINERY AND EQUIPMENT

GOSPLAN'S ISAYEV TALKS TO 'NEDELYA' ON CONSTRUCTION

PM141041 Moscow NEDELYA in Russian No 1, 3-9 Jan 83 (signed to press 6 Jan 83) pp 2-3

[Interview with USSR Gosplan First Deputy Chairman V. Ya Isayev by Aleksandr Yevseyev and Vladimir Tolpygin: "Renewing the Face of the Earth"]

[Text] "We are accustomed to thinking in concrete categories," said Vasiliy Yakovlevich Isayev, starting the interview. "So I ask you: 'What is a construction worker?' The image you will have will be that of a man installing a concrete panel. Or seated in the cabin of a bulldozer. Or something along those lines. But if you distance yourself from these purely visual, concrete notions and look deeper into the "heart of the matter," you will draw the following curious conclusion: a construction worker is one who is always renewing the face of the earth.... He is rejuvenating the world.

"Clearly, all that we talk about later will relate in some way or another to this renewal, this rejuvenation of our land. But I think that you came here, to the gosplan, not to consider abstract themes; what interests you, of course, are more concrete things--we have met in the past at the beginning of the year, and we have always talked about the construction workers' plans for the new year. And that is what we will do today, no doubt.

[Question] Naturally, that is the main purpose of our now traditional, first NEDELYA interview of the new year. But let's start with a question about last year: What is your assessment of its results--I am talking about the construction program, of course.

[Answer] Many construction workers fulfilled their plans successfully in the main. But let us start from the chief criterion which should form the basis of an assessment of the work of ministries and departments, the criterion mentioned at the November Plenum of the party Central Committee by Yuriy Vladimirovich Andropov: To what extent is the sector satisfying society's constantly growing needs?

How did the construction workers do last year? You were able to judge this for yourself--no one made a secret of anything: not a day passed without the country learning about some new facility being constructed. Constructed or modernized. In short, every day something created by their own hands began a new life.... In terms of figure, the progress over the year was as follows:

our power stations' energy potential increased by more than 10 million kilowatts. The country's agriculture received last year nearly 1.5 million hectares of irrigated and drained land. More than 10,000 km of main gas pipelines were laid--no other country is building "gas rivers" on such a scale, at such a rate. The construction workers commissioned 107 million square meters of new housing. Again, this is a higher rate than anywhere else in the world....

[Question] What does this figure mean?

[Answer] Very simple: it means 2 million apartments. More than 2 million even. One might also say that the living conditions of 10 million people have been improved.

If one assesses the construction workers' efforts in terms of rubles--and this is one of the most important indicators for us--you get the following: via state funds alone fixed capital worth over R118 billion was commissioned....

[Question] How does that figure compare with the previous year?

[Answer] It is R5 billion more.... So you will agree that last year our construction workers made very substantial progress. Which does not signify by any means that there is nothing to criticize them for or that they should not be criticized. Unfortunately, there are grounds for criticism: construction production organization is slow to improve. Construction costs are high. Construction deadlines are not always met. There is still a considerable amount of uncompleted construction. And the consequence of all this is that the commissioning of many projects gets delayed. Chiefly to blame for this are such union construction ministries as the Ministry for the Construction of Heavy Industry Enterprises, the Ministry of Industrial Construction and Ministry of Construction. As you know there was a frank discussion of all this at the November Plenum of the party Central Committee.

In his speech at the Plenum Comrade Yu. V. Andropov, general secretary of the CPSU Central Committee, drew attention to the need to increase the proportion of reconstruction and modernization in the overall volume of construction work, reduce the number of new projects and speed up the commissioning of underway projects.

[Question] In this connection, could you provide a little more detail on the problem of uncompleted construction? Where does the "root of the evil" lie? How can the problem be resolved?

[Answer] At first glance it all seems very simple: you don't start any new projects (some people even suggest stopping work at all old projects which are less than 25 percent ready) and eventually the situation will come right. In fact, this is not so: the economy is developing, which means an inevitable increase in the country's demand for energy, oil, gas metals and machinery. And what does all this mean? One thing: we need new power stations,

new mines and pits and new oil and gas fields. New enterprises are also needed, of course. And the old ones must be regularly retooled. So the number of construction projects must increase accordingly. This number will also increase because scientific and technical progress is creating more and more subsectors and production units and is demanding the preferential development of certain old sectors, and all this, again, makes the creation of new capacities inevitable. And this means new construction projects.

So everything is not as straightforward as it appears at first.

In recent years we have managed to increase the concentration of capital investments somewhat or, in other words, reduce the number of construction projects, concentrating funds on the most important projects. For example, the 1980 plan contained nearly 50 percent fewer major construction projects than the 1979 plan. As you know, the number of new construction projects also fell somewhat last year, but because the plan for commissioning a number of projects was not fulfilled and the number of uncompleted projects was smaller than the number of projects started in 1982, the overall number increased.

What steps are being taken in this connection?

Restrictions have been placed on the construction of a number of nonproductive projects and resources are being reassigned to the completion of production projects. Work has been suspended on a number of small construction projects. Of course, this is no way affects such sectors as ferrous metallurgy, fuel extraction and the agroindustrial complex. But the concentration of forces on the most important projects and the restriction of the number of projects being constructed at one time are only part of the package of measures envisaged by the program for improving construction. The program also covers such areas as planning and construction production itself. For the last two factors are also of vast significance for the struggle against uncompleted construction. Indeed the experience of our leading projects, such as the Kama Truck Plant and the experience of the builders of compressor and pumping stations for gas and oil pipelines and other projects completed exactly according to plan or ahead of schedule shows that the decisive part was played by advanced construction technology and progressive structures and materials. Moreover, methods and materials were used in the construction of all these projects which made it possible to sharply reduce the materials-intensiveness of the building and installations. We must make a determined effort to increase production of light weight construction articles. We are obviously obsessed with precast ferroconcrete to the detriment of other construction materials.

[Question] Do you mean brick?

[Answer] That too.... Incidentally, in recent years brickwork (especially using lightweight bricks) has again become a widespread phenomenon in the world. This is due to the fact that the production of this ancient construction material is now organized at the most up-to-date automated plants.

Consequently, the labor productivity of the work force has risen sharply--to 2 million bricks per worker per year.

There is a place for everything of course--bricks, ferroconcrete and steel structures. But we must sharply increase the production of articles made from modern construction materials--light multicore panels and plasterboard--and design more buildings with lightweight metal frames--they require 40 percent less manpower than ferroconcrete frames. In other words, they can be built nearly twice as quickly using the same work force.

[Question] One problem inevitably suggests another. Without knowing it, we have lit on the topic of economy. Judging by what you have just been saying, the reserves for making economies in construction are not exactly small....

[Answer] They are vast. That is [a] more accurate description. Bear in mind that capital construction is one of the most materials-intensive sectors. Every year our construction sites use 20 percent of all the rolled metal produced by the country, over 80 percent of the cement and approximately 23 percent of the timber. Add to that the truly astronomical figures for the nonmetallic materials, brick, glass and roofing materials used up by construction workers and you will see how much they would be able to give the country if they were more economical. At any rate, we have estimated that if just one percent of all the materials our construction workers received in a year were saved, this would provide the resources for building several tens of thousands of apartments. The decisions of the November Plenum of the Party Central Committee urging maximum economy of all funds and resources apply, of course, directly to construction workers.

[Question] One would also like construction workers to be mindful of the following "trifle": Many people change the wallpaper in their apartments even before they have moved in. Twice the amount of wallpaper is used up. Yet there is a chronic shortage of it in the stores. It is now a scarce commodity. What is the point of the extravagance?

[Answer] No point, actually, of course an apartment in a new block should be finished in accordance with the future resident's tastes. And, clearly, partly at his expense. But this idea, as is usually the case, has its advocates and its opponents. As is known, for 2 years now an experiment has been conducted in Leningrad (and some other cities) whereby apartments in new blocks are decorated and equipped in accordance with the instructions of the people who are going to live in them. The experiment has clearly become somewhat protracted because, I think, of the need to ensure efficient liaison among all the participants--the workman, the customer and the financial bodies. In short, it is a matter of rapidly solving purely organizational questions, not of deciding whether it is good or bad. That's all very well, but I have heard of many cases where a person moves into a new block and has no intention of changing a thing--everything is to his liking: the color of the wallpaper, the linoleum, the color of the walls, the tiles in the bathroom.

[Question] But, Vasiliy Yakovlevich, there are still many complaints about the quality of construction work. Especially, of course, where housing is concerned....

[Answer] What are the complaints about? If it's the quality of the interior decoration, then there is only one remedy: strict monitoring of builders' work and high exactingness on the part of those who accept the apartment block from them. Blocks must not be accepted if there are any defects. No matter what promises the construction workers may give. Everything must be brought up to standard and only then should the document commissioning the building is signed.

But if the complaints are about wall panel seams leaking then it is a more serious matter and it is not always the actual construction workers who are to blame. The building will undergo a natural settling process. The seams have to be sealed with special compounds. This is a problem which construction specialists in many countries are pondering. Recently there was even an international conference on leaky seams. Science formulated its recommendations. Scientific research institutes in the construction sphere and the USSR gosstroy are working on them in order to eliminate seam leaks for good.

I think that what we are talking about is of considerable importance and certainly of interest to readers. If you have any questions about the 1983 construction program I am prepared to answer them. Fire away.

[Question] Which of this year's projects do you consider the most important for the development of the national economy?

[Answer] The most important?... I could name the projects, of course. But to do that I would have to run through the whole of this list (he pulls out a bulky file); it has 25 pages and there are two dozen construction projects on each. And believe me, they are all "most important".... Why, you ask. Because our economy is so complex and multifaceted and requires such an exact and precise balance between all its elements that it would be wrong to single out individual projects in preference to others. Everything, I repeat, is bound up in a single, live national economic organism and everything needs development. This does not mean, of course, that some sectors need more capital investments and a faster tempo (and, consequently, great construction worker participation) [sentence as published].

[Question] All right, we'll put the question another way: What do you see as the special features of this year's construction program? Are there any, in fact?

[Answer] There are, believe me. But, first of all, let us not think that this year's program is radically different from last year's or, say, from the program for the first year of the 5-year plan. It is just part, just one component of the unified 5-year plan. It is a logical continuation of the work we began last year and, maybe, before that. I repeat: We are talking about links in one economic change stretching over many years.

At the same time, every year has its special features, its peculiar traits. The special features of this year's construction program stem from the recent decisions of the party and government, from the decisions of the May and November (1982) Plenums of the Party Central Committee. The emphasis in the construction program is on the accelerated development of sectors associated with the food program and with the fuel-power complex and national economic sectors responsible for scientific and technical progress and the retooling of the entire national economy (primarily machine building and the chemical industry). Light industry will also be developing at preferential rates.... In all we are to carry out construction and installation work (this includes new construction and the reconstruction of existing production units) worth R71 billion. This is a very, very big fiture, but it is the level reached by the construction workers last year.

[Question] So the construction workers' "stride" will be the same as last year?

[Answer] Not exactly the same. Or rather, not everywhere. For instance, the country's energy capacities will increase by 12.3 million kilowatts--this, you will recall, is much bigger than last year. And about one-half of this increase will be nuclear energy--it is planned to commission the country's first 1.5-million-kilowatt power block at the Ignalinskaya AES and 1-million-kilowatt power blocks at the Zaporzhye, Kalinin, Kursk and Chernobyl nuclear power stations. You can see the kind of power increase we'll get immediately! At the hydroelectric power stations it is planned to commission 13 units--that's another 1 million kilowatts. As for thermal power stations, priority is being given to Siberia, Kazakhstan and the far east where the fastest construction rates are planned. Many new power transmission lines are due to be constructed--170,000 km in all, much of it to electrify agriculture.

Oil and gas industry construction workers also have a big program. This year the plan is to extract 619 million tons of oil and gas condensate--no other country has ever seen such massive figures. The bulk of the oil extraction increase will be obtained in West Siberia--60 percent of our oil will come from there. Gas extraction will reach 529 billion cubic meters--again the biggest figures the world has ever seen. To this end the construction workers, as in past years, will carry out a vast amount of work to lay oil and gas pipelines, construct field service facilities, housing and other projects. Nearly 11,000 km of main gas pipelines and branches will be commissioned.

[Question] And what about the Urengoy-Uzhgorod export gas pipeline? When is the work due to end there?

[Answer] In the last quarter of this year; and it will start operating next year.... Incidentally, we have taken into account the possibility of a repetition of the situation which occurred last year when deliveries of certain equipment for the construction of the Urengoy-Uzhgorod gas pipeline came under threat. To protect ourselves against these things, the idea is

to create new capacities at the Turboatomgaz Plant and at the Nevskiy Lenin Machine Building Plant for the production of equipment for gas compressor stations.

New mines and open pits will be commissioned in the coal industry with an overall capacity of 19.6 million tons. The increase in the capacities of existing coal enterprises as a result of retooling will account for 4.6 million tons. A large proportion of the extra coal is to come from open pits in Siberia and the Far East.

[Question] Now a few words about work associated with implementation of the food program.

[Answer] There is an extremely wide range of work--there are new capacities at tractor and combine plants, extensive land reclamation work, the construction of new enterprises which will make equipment for livestock raising and fodder production and the construction of new hothouse combines with an overall area of 229 hectares, vegetable storage facilities (they are under construction in all the Union republics) with a total capacity of 715,000 tons of fruit storage facilities (also under construction in all the Union republics) to hold 87,000 tons. There are plans for the construction of vegetable and fruit canning enterprises with a capacity of 276.8 million standard cans. And, of course, there is a whole lot of work to do in the food industry. Bakeries will be constructed in Lesosibirsk, Bezhetsk, Krasnoufimsk, Ulyanovsk, Shamakha (?) and Ashkhabad--I am listing them all because I know that NEDELYA writes a lot about bread and about problems relating to its production and consumption. New dairy and cheese-making plants and a sugar refinery will be commissioned in Bashkiria. A new fish-processing enterprise will start up in Moscow. A lot of attention is being paid to the construction of kolkhoz markets. Some 42 percent of all this year's major construction projects are for the agroindustrial complex.

[Question] Tell me, Vasiliy Yakovlevich, how are things on the Baykam-Amur Railroad?

[Answer] Very good. Over 770 km have already been commissioned. In the Buryat section the construction workers are in the vicinity of the Severo-Muyskiy Tunnel. West of Tynda the track is already laid past Khani Station. Incidentally, the line has been opened here to passenger traffic ahead of schedule. The 6-km Baykal Tunner is nearly finished. In the first half of the year the track will reach Chara Station which is not far from the celebrated Udokan copper deposit.

In short, as you can see, our program for this year is very extensive, everyone has to work hard--above all, the construction workers, of course.

The construction workers know that the plan represents the minimum that it is necessary to do. Every word and every figure in our programs must be corroborated by action. Once the plan has been laid it must be fulfilled!

CSO: 1821/64

CONSTRUCTION PLANNING AND ECONOMICS

KIRGIZ OFFICIALS DISCUSS CONSTRUCTION IN REPUBLIC

'Stroyindustriya' Trust Problems Scored

Frunze SOVETSKAYA KIRGIZIYA in Russian 21 Sep 82 p 3

[Article under the heading "In the Kirgiz SSR People's Control Committee : Intensifying Demands for Quality"]

[Text] The Kirgiz SSR People's Control Committee has reviewed the question of serious shortcomings in the work of the "Stroyindustriya" Trust of the Ministry of Construction in terms of improving the quality and factory finish of components, parts and articles being delivered to republic construction sites.

As was noted in the decree adopted, the leaders of "Stroyindustriya" trust and the enterprises subordinate to it have not ensured the needed improvement in the quality and factory finish of output being produced. A significant portion of the items being supplied construction organizations require considerable additional work under building conditions. According to incomplete data from general contractor construction organizations, expenditures on this have been 148,000 rubles over the past two years. Trust enterprises have been fined 85 thousand rubles for delivering substandard output. All this has substantially lowered the technical-economic work indicators of contractor organizations and delayed construction and product start-up schedules. A check of the quality of reinforced concrete articles during the installation process showed that it continues to be unsatisfactory. As a consequence, the roofing combine under construction in Kara-Balta is faced with additional work to level the surfaces of a total of 882 square meters of prefabricated columns and 5,600 square meters of wall panels and partitions, and considerable additional work is required on other parts and components.

The trust's technical services and its enterprises are not ensuring the needed production technology; steam-curing chambers are malfunctioning at a majority of the plants. Heat-treatment routines are being monitored primitively. Due to under-curing of the concrete, some items in the components are defective. For this reason alone, trust enterprises manufactured 2,100 cubic meters of defective items on which 100 tons of metal and 630 tons of cement had been spent last year and the first half of this year.

The quality of reinforced concrete items being produced by ZhBI-1 [No 1 reinforced concrete products] plant is extremely poor. Unfortunately, the plant director, F. Kim, and its chief engineer, S. Li, have long since reconciled themselves to this. Only this could explain the fact that no operation monitoring is done here, that no technical supervision at all is provided on the second shift in a majority of the sectors and the OTK [technical control department] accepts items with gross defects. Enterprise opportunities for improving output quality are not being used. Previously installed devices to apply colloidal-cement glue to form surfaces are not being used, resulting in span slabs being produced with a low level of factory finish and requiring major additional work under construction-site conditions. In trust No 1's SMU-8 alone, nonproductive finishing-work expenditures were more than 16,000 rubles. Over a two-year period, the plant paid a total of more than 50,000 rubles in penalties for substandard output.

Analogous facts were revealed at ZhBI-5 (plant director S. Gayko, chief engineer A. Lauer). There is essentially no monitoring of production technology here. The reinforcing grids and frames are not secured. Forms are operated extremely unsatisfactorily, hardened concrete is not cleaned off, and the forms are assembled poorly, resulting in items deviating from standard dimensions. The practice of accepting and shipping to projects output which is practically unusable has taken root at the plant. Additional expenditures totalling more than 4,000 rubles were required just at the baked-goods combine under construction in Tokmak to eliminate defects. Those responsible for the release of poor-quality output remain unpunished in a majority of cases.

The shortcomings noted are a result of the fact that trust leaders (manager A. Kryatov, chief engineer V. Ivanov) have not provided high-principled evaluations of the work of subordinate enterprises and are poor in directing the efforts of engineering-technical workers towards resolving questions of improving the qualit of items and materials. The trust and the plants work out steps to improve product quality each year, but many of them are systematically not carried out.

There is poor monitoring of the quality of items being produced by enterprises of the republic Ministry of Construction's "Stroyindustriya" trust (deputy minister B. Kertser). The decisions being made by the ministry are not being reinforced with organizational work and trust and enterprise leaders are not being held strictly accountable for poor-quality output. Persistence has not been displayed in eliminating the shortcomings revealed by the enterprise people's control groups.

The Kirgiz SSR People's Control Committee has reprimanded the trust manager, A. Kryatov, and the chief engineer, V. Ivanov, for failure to ensure the release of quality output and its poor factory finish, for poor supervision of the activity of the trust apparatus and subordinate enterprises.

The committee has severely reprimanded the director of ZhBI-1 [reinforced concrete products plant No 1], F. Kim, and reprimanded OTK chief N. Anarbekov for failure to supervise and for poor-quality reinforced concrete products supplied to construction sites. Each has been docked a month's pay in partial compensation for the material damage cause the state.

The committee severely reprimanded ZhBI-5 chief engineer A. Lauer and reprimanded OTK chief L. Grigorenko for failure to take prompt steps to avert the release and delivery to construction sites of substandard reinforced concrete items and for lack of principle by the technical monitoring department in accepting output. They also were docked a month's salary each in partial compensation for the damage caused.

The republic people's control committee has instructed the leaders of ZhBI-1 and ZhBI-5, comrades Kim, Anarbekov, Lauer and Grigorenko, to speak before the labor collectives on the results of the committee's check and on the steps taken to eliminate the shortcomings revealed.

Gosstroy Official on City Development

Frunze SOVETSKAYA KIRGIZIYA in Russian 17 Nov 82 p 2

[Interview with Kirgiz SSR Gosstroy First Deputy Chairman K. M. Alykulov: "Cities Look to the Future"]

> [Text] The "Basic Directions of USSR Economic and Social Development in 1981-1985 and Up To 1990" define the 11th Five-Year Plan as an important stage in the implementation of long-range tasks. One such task is the continued development of city design and building, to which important significance is attached in the program for steadily and comprehensively improving the well-being of the workers. A Kirgiz Telegraph Agency correspondent met with Kirgiz SSR Gosstroy First Deputy Chairman K. M. Alykulov and asked him to respond to a number of questions connected with city development in our republic.

"How the cities of our mountainous region look today is a result of the growing professional skill of designers, architects and engineers, of their ability to use in architecture the achievements of modern industrial construction," says K. M. Alykulov. "The availability of city and rayon center general plans has improved as a result of steps taken in recent years. The creative activity of republic architects and planners displays an increasingly harmonious combination of concern for creating the conditions necessary for people's work, recreation and education with the construction of especially beautiful and expressive buildings. A number of structures which have enriched the architectural appearance of our republic's cities and population centers would be examples of this. These include a circus seating 2,000 spectators, the Museum of Representational Art, Manas Airport, the monument to Fighters in the Revolution and the new philharmonia building in Frunze, the drama theater in Osh, the House of Political Education in Frunze, and a number of other facilities.

[Question] What work is being done to improve the quality of large-scale housing construction?]

[Answer] In recent years, large-scale housing construction in Frunze, for example, has been done basically in the form of large-panel five- to nine-story

buildings of the 105 series. Series 106 frame-panel housing plans have been worked out for building up the republic capital with multistory houses. Along with this, we have been developing standard and individual plans for monolithic-design houses. Specialists continue to perfect the 105 series by reducing the products list of interior wall panels, introducing modular shower stalls and elevator shafts, and mastering the installation of heated lofts and non-roll roofing. Variants of interlocking sections with overhanging balconies have also been worked out and we have completed work on large-panel and frame-panel housing plans adjusted to reduce heat loss. In view of the fact that series 98 housing plans no longer meet modern city design and building demands, the Kirgiz SSR Gosstroy anticipates the development of new four- and five-story standard housing plans using local materials in 1982-1983. Experimental housing designs on spherical fluoroplastic supports and with stays that disconnect in case of earthquakes, permitting the build-up of regions of high seismicity and unfavorable geological conditions, have received high praise from specialists.

[Question] Kanybek Mamytovich, it would be impossible to imagine a modern city without industrial construction. What do you anticipate that is new in this regard in the appearance of republic cities?

[Answer] Let's begin with a short trip back in time. Prior to the early 1960's, industrial construction in Kirgizia was random, without a comprehensive, planned approach to enterprise siting. This led to a concentration of many enterprises and facilities in the central portions of a majority of the cities and settlements, which is absolutely impermissible from the viewpoint of sanitation, fire-prevention and layout norms. In order to overcome these shortcomings, the republic adopted a policy of combining individual industrial enterprises into industrial centers. In this regard, the following four postulates were followed: unity of architectural-layout and compositional requirements, organizing the maximum possible cooperation among industrial-center enterprises, ensuring the most effective use of the industrial center site and, finally, comprehensive resolution of questions of the architectural-artistic qualities of the development, cultural and personal services to the population at the enterprises and in the adjacent housing developments, and environmental protection.

Our republic has worked out plans for industrial centers for practically all its cities and major population centers. With a view towards eliminating the existing disorganized development in Frunze, the "Frunzepromproyekt" Institute has worked out a plan for putting the siting of industrial facilities into proper order; its projections run up to 1985.

The republic has recently put up industrial enterprises, buildings and structures which are of considerable architectural interest. These include the Osh Pump Plant, the VAZ special vehicle center, the engineering-laboratory building at Frunze Technological-Design Institute for Fodder-Harvesting Equipment, and the grain products combine in Tokmak.

[Question] Artistic elements are of great importance in increasing the expressiveness of city development. In this connection, I should like to hear a few words about the synthesis of architecture and monumental art in city design and building.

[Answer] Much work has been done in recent years to improve the architectural-artistic appearance of republic population centers. Monuments, panels and mosaics have appeared in a number of cities and rayon centers, transforming their appearance and becoming an important means of patriotic, international and aesthetic development of the workers. The best works of monumental art have received broad approval in the community. The installation of memorials and monuments to Toktorul and Gor'kiy, to Fighters in the Revolution, of the Manas sculpture group and other works in Frunze has been a big event in the sociopolitical and cultural life of the republic. A memorial to traveler Semenov-Tyan-Shanskiy has been erected in Rybach'iy and will doubtless become a true decoration to the "gates of Issyk-Kul'."

Along with the positive, we need to note that the state of monumental art in the republic is still not at the proper level. Many local Soviets of People's Deputies ispolkoms and many rayon and city architects are still insufficiently concerned with monuments and are not working out unified plans for the architectural-monument and artistic-political shaping of cities and villages. We have not yet outlived the fallacious practice among individual kolkhozes, sovkhozes, enterprises and organizations of willfully erecting memorials without appropriate permission. All this leads to a situation in which consideration is not always given to the social significance of memorials being erected and the ideological-artistic quality of the pieces and the expenditure of funds for these purposes are not strictly supervised.

[Question] Tell us, please, about the plans and tasks of city developers in connection with development of the Issyk-Kul' health-resort area.

[Answer] The renovation and development of health facilities in this region is currently being based on approved planning-layout documentation. The main buildings of well-built sanatoria have risen up on the lakeshore. Along with this, we have eliminated more than 70 small, poorly-equipped recreation facilities which were polluting the lake. Last year alone, more than 200 dilapidated cabins and farm buildings right on the lake were eliminated.

The erection of new sanatoria makes it necessary to build centralized treatment plants. Resolution of this question is often delayed by a bureaucratic approach on the part of certain ministry and department leaders with their own recreation centers here.

The construction base is of important significance to developing the Issyk-Kul' health-resort area. Unfortunately, the Kurgiz SSR Ministry of Construction has not paid the proper attention to developing the capacities of PMK-107 [mobile mechanized column No 107] of the "Issyk-Kul'stroy" trust in Cholpon-Ata, which is concerned with health-resort construction. Funds allocated by the Kirgiz Trade-Union Council for building and expanding trade-union sanatoria in Issyk-Kul' have not been utilized for a number of years here. In this connection, it would be appropriate for the Kirgiz Trade-Union Council to examine the question of creating its own construction organization in this region both to do maintenance and to build individual projects.

[Question] Specialists at many institutes in the country have participated in creating the cities of Kirgizia. With what centers have Kirgiz city developers established solid business ties today?

[Answer] It would not be an exaggeration to say that the labor of hundreds of specialists at scientific centers in all the Union republics is the basis of the success of city developers in our mountain region. For instance, associates at the Central Scientific Research Institute of City Design and Building Planning have worked out plans for rayon layouts in Osh and Naryn oblasts, the Issyk-Kul' health-resort area, and are working on the rayon layout for Talas Oblast. The draft rayon layout for the Chuyskiy Intrarepublic Rayon is in the final refinement stage. The plans developed have permitted a very efficient decision on territorial-economic development, shaping the layout structure and functional zoning of rayons to ensure optimum conditions for production development, city design and building, protecting and improving the environment and the comprehensive use of natural, economic, labor and other resources.

The proposals and recommendations of the specialists are being used actively by local organizations in current economic activity and are being used as a basis for subsequent planning. The collective of the State Theater Planning Institute has authored plans for the Kirgiz Academy Drama Theater and Philharmonia in Frunze, and the Central Scientific Research Institute of Building Components imeni Kucherenko has rendered us much assistance in developing monolithic house building. We are forever indebted to specialists from the Ukraine and Moldavia, Tajikistan and Lithuania, Uzbekistan and Belorussia, to all who have lent us a hand.

Concentrating Capital Investments

Moscow EKONOMICHESKAYA GAZETA in Russian No 48, Nov 82, p 17

[Article by U. Nabitayev, manager of the Kirgiz Republic Stroybank Office, under the heading "Construction Efficiency": "Light and Shadow: Kirgiz Construction Practice"]

[Text] In Kirgizia, as in all other union republics, the scale of construction is growing. This year, capital investments in developing the national economy of Kirgizstan will be increased by approximately 12 percent as compared with last year.

Under these conditions, using allocations by the state as effectively as possible takes on top-priority importance. The reference is to a persistent struggle against diverting material and labor resources from the most important construction projects of the five-year plan, against prolonging construction schedules.

Workers in the republic Stroybank office bear much responsibility for the efficient expenditure of capital investments. We focus attention foremost on not scattering allocations, concentrating them on start-up construction projects and directing them into the renovation and retooling of enterprises where the funds will yield a maximum return. We have encountered considerable difficulties and obstacles.

Thus, last year, we had to insist on eliminating from the plans 17 construction projects with an overall cost of 21.6 million rubles and an annual capital

investment limit of 3.9 million rubles. This year, the ministries and departments have attempted to include in the plan 25 new projects without justification. But the funds freed by not including them were directed into completing the installation of 44 projects.

As a result of such redistribution, it became possible this year to put into operation fixed assets worth an additional 17.6 million rubles. In particular, two new projects were eliminated from this year's "communications branch" plan. The 586,000 rubles designated for them by the Kirgiz SSR Ministry of Communications were directed into completing the construction of an ATS [automated telephone exchange] on the Kara-Balta.

The republic vocational education committee intended to begin putting up a vocational-technical school building in Katta-Taldyk village without having provided financing for the completion of construction of a vocational-technical school in Ak-Kurgan village. The new construction project had to be postponed and the funds allocated to the start-up project.

Based on the results of an analysis of construction this year, as well as of draft plans and titles lists for 1983, we have instituted republic Council of Ministers, ministry and department proposals on further concentrating capital investments.

The amount of unfinished construction remains high. At the end of 1982, it was about 74 percent of the annual plan, that is, only slightly less than at the start of 1981. Many construction organizations, though, are not meeting assignments on putting start-up projects into operation.

In examining capital investment plan variants submitted for next year, Stroybank workers try to ensure the proper expenditure of the funds being invested. Preliminary calculations bear out the fact that 14 percent fewer new construction projects will be included in the 1983 plan than were in the 1982 plan. This will naturally create definite opportunities for improving the effectiveness with which funds are used.

We are keeping an eye on analyzing the use of new capacities. Checks have shown that there are still serious shortcomings in this area. Shops are often poorly supplied with raw and other materials after start-up. They lack skilled personnel and labor organization is unsatisfactory.

More than half the enterprises surveyed have not kept to the normative schedules for mastering planned capacities. These include the Ministry of Motor Transport and Highways reinforced concrete products plant in Rybach'iy and the republic Ministry of Light Industry spun-worsteds factory. It was to have reached its planned production level more than three years ago, but has not yet reached many indicators.

When planning the crusher-grader at its Kurmentinskiy Cement Plant, the Ministry of Building Materials Industry "forgot" to anticipate replacing small excavators with more productive ones. It is no surprise that the facility cannot operate normally. Less than half the new capacity at the Talas Gravel-Grading Plant is being utilized (same ministry).

Whenever such shortcomings are discovered, Stroybank institutions make critical observations, offer business proposals and urge appropriate Kirgiz ministries and departments to speed up the mastering of capacities which have been put into operation.

Substantial economic defects such as construction cost estimate overruns born of planning errors are also revealed sometimes. For the projects we checked, overruns were 9.7 percent, sometimes higher for individual projects.

Here is a rather typical case. A 176-apartment building on Ayni Street at Mir Prospect in Frunze cost 758,000 rubles more due to additional finishing with marble, granite and other expensive materials on the built-in store and cafeteria. In a number of other instances as well, the "Frunzegorproyekt" institute (client -- Frunze gorispolkom UKS [capital construction administration]) altered plan resolutions, generally leading to increased costs and causing failure to meet planned schedules for putting houses up, as well as injecting disproportions in the budgeting process.

Also needing improvement is the planning of industrial structures. For example, "Kirgizpromproyekt" institute increased the cost of wall panels in one shop by 100,000 rubles without adequate substantiation.

Capital construction in our republic today is a complex sector. Given growth in the levels of state allocations, builders have not yet managed to carry out plans for putting all projects into operation on schedule. Stroybank institutions monitoring work progress try to help contractors and clients overcome difficulties and resolve more successfully the tasks set them in every way they can.

We consider granting construction organizations credit to be a very effective measure. The role of credit is especially large in renovating enterprises. The share of long-term credits in all sources of capital investment financing in the USSR Ministry of Power Engineering and Electrification system now exceeds 24 percent.

Analysis shows that organizations resorting to long-term credit use the funds obtained with a high return. Of the 11 enterprises checked which are being built using long-term credit, nine have reached planned capacity on schedule or ahead of schedule.

In calculating commodity construction output, Stroybank workers have as their foremost goal the accumulation of resources to grant credit for unfinished production. One reliable way is to accumulate in special accounts the client funds freed in connection with calculations for commodity construction output. The office regularly informs ministries and departments of failures to promptly transfer funds to such accounts. At our suggestion, the republic Council of Ministers has allocated ministries and departments about 10 million additional rubles to make up shortages in special-account funds which were generated last year.

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CONSTRUCTION PLANNING AND ECONOMICS

USSR GOSSTROY OFFICIAL OUTLINES MAJOR PROJECTS

Moscow EKONOMICHESKAYA GAZETA in Russian No 1, Jan 83 p 11

[Article by I. A. Ganichev, deputy chairman, USSR Gosstroy: "Put All Start-Up Projects into Operation!"

> [Text] I. A. Ganichev, deputy chairman of USSR Gosstroy, comments on the map of key start-up projects in the third year of the 11th Five-Year Plan.

Soviet construction workers carried out a grandiose program of building last year. They put fixed capital worth 118 billion rubles into use from state capital investment alone. This was 5 billion rubles more than the first year of the five-year plan.

They face even greater goals this year. The plan calls for introducing 125.4 billion rubles of fixed capital through state capital investment.

The justified criticism heard at the November 1982 Plenum of the CPSU Central Committee concerning the situation in construction forces us to devote greater attention to concentrating personnel and equipment in the decisive sectors and to insure that all 1983 start-up projects are launched.

The map accompanying this article [not reproduced] shows only the most important start-up projects of the third year of the 11th Five-Year Plan.

Energy Potential Is Growing

As noted at the seventh session of the USSR Supreme Soviet, work on development of the national energy program has largely been completed. This includes technical re-equipping and development of petroleum and gas extraction, petroleum refining, and the coal industry and the launching of new energy capacities. In 1983, as the map shows, a significant contribution will be made to carrying out this program.

The first energy units of the Kalinin and Zaporozhye nuclear power plants, each of which will have a capacity of 1 million kilowatts, will produce power. The Chernobyl nuclear power plant will be the fourth facility producing 1 million kilowatts.

Each quarter will be marked by the launching of new hydro units at the Cheboksary GES; during the year turbines Nos 8-11 with 78,000 kilowatts apiece are to be put under load. The second hydro unit with a capacity of 190,000 kilowatts will go on line at the Shamkhor hydro engineering complex in Azerbaijan, while a turbine with a capacity of 50,000 kilowatts will be launched at the Tyuyamuyun hydro complex in Khorezm Oblast. The fifth and sixth units with 117,000 kilowatts apiece will go on line at the Dnestr GES in Chernovtsy Oblast.

Construction of Ekibastuz GRES No 1 in Pavlodar Oblast will be completed in the new year. With the launching of the seventh and eighth power units, 500,000 kilowatts apiece, it will reach its projected capacity of 4 million kilowatts. Plans call for turning over large power units at the Azerbaijan, Maritime, and Tkvarcheli GRES's, the Vilnius, Vladivostok, and Irkutsk central heat and power plants, and the central heat and power plants of the Tobolsk Petrochemical Combine, the Norilsk Mining and Metallurgical Combine, and the Syktyvkar Forest Industry Complex.

The map shows the transcontinental gas pipeline from Urengoy to Uzhgorod, a distance of about 4,500 kilometers. It is to be launched in the fourth quarter, and at the start of the new year one more gas pipeline from the same source is to be turned over for operation, running from Urengoy through Nizhnyaya Tura and Petrovsk to Novopskov. Trunk gas pipelines from Novopskov to Shebelinka, from Petrovsk to Yelets, and from Khiva to Beyneu will be launched. In 1983 the following petroleum product pipelines will be put into operation: Nikolskoye — Voronezh — Belgorod — Kharkov; Novki — Ryazan — Tula; Lisichansk — Trudovaya — Donetsk — Zhadanov; and, Petropavlovsk — Kokchetav — Tselinograd.

The map shows new capacities at the Mazheykyay petroleum refinery in Lithuania, the Lisichansk refinery in Voroshilovograd Oblast, and the Novogroznenskiy refinery.

In the coal industry the largest start-up projects are the first phase of the Neryungri open-cut mine in Yakutia (4 million tons), the Azeyskiy open-cut mine in Irkutsk Oblast (3 million tons), Irsha-Borodino No 1 open-cut mine in Krasnoyarsk Kray (2.5 million tons), the underground Mine imeni 50-letiya SSSR in Karaganda Oblast, and the Medvezheyarsk underground mine in Kirovograd Oblast.

The Client Is the Agroindustrial Complex

The agroindustrial complex has rightly become a major client of the construction industry. In 1983 about 47 billion rubles has been appropriated for the development of all its sectors.

It is practically impossible to show all the start-up projects of the agroindustrial complex on the map; there are several hundred of them. Among the largest are the livestock complex at the Druzhba Sovkhoz in Donets Oblast with a capacity of 10,000 head of young cattle. Similar large livestock complexes will be introduced at the Lovzhanskiy Sovkhoz in Vitebsk Oblast, the Gigant Sovkhoz in the Karakalpak ASSR, and Muminabad-3 Sovkhoz in Leninabad Oblast. The map shows the Markuleshti experimental hog complex with a capacity of 54,700 head in the Moldavian SSR.

The Bratsk poultry factory, a start-up project in Irkutsk Oblast, is figured for 460,000 laying hens, while the Poultry Factory imeni 50-Letiya VLKSM near Leningrad will go into operation with capacities for 320,000 laying hens. New egg production poultry factories with capacities between 100,000 and 250,000 laying hens will be completed in Rostov, Novosibirsk, Kharkov, Andizhan, and Karaganda Oblasts and in Kirghizia, Tajikistan, Armenia, and Turkmenistan.

Large meat production poultry factories are being prepared for turning over in 1983 in Pskov, Orel, Kuybyshev, Sverdlovsk, Donets, Grodno, Samarkand, Tashkent, and North Kazakhstan oblasts, the Komi ASSR, Georgia, Azerbaijan, Kirghizia, and Tajikistan.

The map also shows hothouse combines. The "star of the first magnitude" here is the Yuzhnyy Sovkhoz in Stavropol Kray, where 24 hectares of covered ground will be introduced. Other large hothouse combines are planned for launching in Moscow, Kiev, Mogilev, Tashkent, Alma-Ata, and Tashauz oblasts and in Georgia, Lithuania, Armenia, and Estonia.

Procurement facilities are an important component part of the agroindustrial complex. The map shows elevators with one-time storage capacities of 50,000-100,000 tons of grain in Ryazan, Vladimir, Voronezh, Kursk, Rostov, Kirovograd, and North Kazakhstan oblasts, Lithuania, and Krasnodar Kray.

Milling enterprises are to be launched in 1983 in Astrakhan, Kuva in Fergana Oblast, and Beltsy in Moldavia. New mixed feed production facilities will appear in Vologda, Sakhalin, Ternopol, and Kustanay oblasts, the Karelian, Chuvash, Tatar, and Dagestan autonomous republics, Georgia, Azerbaijan, and Turkmenistan.

The microbiological industry occupies a prominent place in the agroindustrial complex. Capacities for production of 60,000 tons will be put into operation at the Kremenchug Protein-Vitamin Concentrate Plant in Poltava Oblast and the Mozyr Feed Yeast Production Plant in Gomel Oblast, while facilities capable of producing 30,000 tons of feed yeasts a year will be launched at the Svetloyarsk Protein-Vitamin Concentrate Plant in Volgograd Oblast.

A vast program of start-up projects is outlined in the processing sectors. Introduction of new capacities is planned for production of canned fruit and vegetables at the Azov Children's Nutrition Industrial Complex in Rostov Oblast, the Izmail canning plant, and the branch of the Andizhan canning plant at the Pravda Vostoka Sovkhoz, and at the enterprise in the community of Gysk in Moldavia. The map shows the Artyashevskiy meat combine in Mordovia and the Samarkand meat combine. Dairy plants will be turned over in Petrozavodsk, Gorky, Krasnodar, Sverdlovsk (Voroshilovgrad Oblast), Alushta, Minsk, and Ust-Kamenogorsk.

Capacities to process 30,000 quintals of sugar beets a day are to be turned over at Bashkir Sugar Plant No 4; other capacities to be introduced include: 5,700 tons of output a year at the Kursk confectionary factory; 360,000 tons (processing) at the Anninskiy Butter Plant in Voronezh Oblast; 120 tons of oil seeds a day by the extraction method at the Bayram-Ali Oil Combine in Mary Oblast. Large beer breweries will be launched in Sterlitamak and Irkutsk.

A number of projects of the agroindustrial complex are shown on the map with chemical and machinebuilding symbols. These are the production facilities for mineral fertilizer at the Angarsknefteorgsintez [Angarsk Petroleum Organic Synthesis] Association, the Nevinnomyssk Azot Association, the Turkmen and Dorogobuzh nitrogen fertilizer plants, and the Novo-Solikamsk and Soligorsk No 4 potassium fertilizer plants. Large synthetic ammonia capacities are planned for turning over at the Kemerovo Azot Association and the Chirchik Elektrokhimprom [Electrochemical Industry] Association.

New capacities to produce farm machinery and spare parts for it will be introduced at the Gryazi Cultivator Plant, the Altai Farm Machinery Plant, the Krasnoyarsk Combine Plant, the Kherson Combine Plant, and the Kazakh Farm Machinery Plant. Production of machinery and equipment for animal husbandry and feed production will begin in new production areas at the Belebey plant, the Burot Livestock Machinery Plant, and the Mogilev Farm Machinery Plant in 1983.

Industrial Might Is Growing

The plan for 1983, of course, took account of the need to improve national economic proportions. The start-up program for industrial projects also serves this purpose.

Ferrous metallurgy capacities will receive solid additions in all sectors. The annual extraction of iron ore will grow significantly thanks to the launching of the following major facilities: mining-concentrating combines at Kostomukshskiy in Karelia (8 million tons), Stoylenskiy in Belgorod Oblast (4 million tons), Kachkanar in Sverdlovsk Oblast (1.5 million tons), Kamysh-Burun in Crimea Oblast (iron ore 1.5 million tons), and the Kurzhun-Kul' Mine (1 million tons) in Kustanay Oblast.

The country's first steel production facility without blast furnaces ("bezdomennoye proizvodstvo") will be launched at the Oskol'skiy Electrometallurgical Combine in Belgorod Oblast. Two electric furnaces with a total capacity of 725,000 tons of high-grade metal a year will go into operation there. A unit capable of producing 350,000 tons of steel a year will be launched at the Orsk-Khalilov Metallurgical Combine in Orenburg Oblast.

The planned launching of "3,000" rolling mills in Zhdanov (1.2 million tons), a "300" medium-fine-grade mill in Pekabad (600,000 tons), a "1,700" mill in Temirtau (400,000 tons), the second phase of the "2,500" mill in Magnitogorsk (300,000 tons), and the "30-102" mill at the Pervouralsk New Pipe Plant in Sverdlovsk Oblast (14,000 tons of pipe) will be important not just for the sector, but also for the entire national economy. New coke batteries with capacities of 1 million tons apiece will appear at the Magnitogorsk Metallurgical Combine and the Altai Coke Chemical Plant.

Machine building sets the tone of technical progress. The map shows start-up projects to produce steam turbines, large electrical machines, submersible electric motors, mainline electric locomotives, power semiconductor transformers, chemical, oilfield, and drilling geological exploration equipment, metal-cutting lathes, forge and press machines, computer equipment, trucks, lift trucks, and excavators. These facilities will be built in Leningrad, Brezhnev, Kharkov,

Novocherkassk, Tbilisi, Tolyatti, Tallinn, Kurgan, Poltava, Kungur, Baku, Sterlitamak, Stryy, Taurag, Kutaisi, Charentsavan, and Kalinin.

Major production facilities for sulfuric acid, caustic and calcified soda, capron thread for rope and technical articles, polyvinyl chloride fiber, polyethylene, alkyd resins, Formalin, and vehicle tires will be launched at the Novokokand Chemical Plant in Fergana Oblast, the Kalush Khlorvinil Association in Ivano-Frankovsk Oblast, the Sterlitamak Soda Association in the Bashkir ASSR, the Barnaul, Daugavpils, Rustavi, and Kustanay chemical fiber plants, the Angarsknefteorgsintez Association, the Tashkent Paint-Lacquer Plant, the Kiviyli Shale Chemical Combine in Estonia, and the Belotserkovskiy Tire and Rubber-Asbestos Goods Combine.

The "rear support areas" of the construction industry itself continue to grow stronger. Among the start-up projects for 1983 are facilities to produce cement (in Karaganda Oblast), ceramic floor tile (Vilnius), steel construction elements (Kurgan and Kirov), and precast reinforced concrete (Bekabad, Dzhizak, Komsomolsk-na-Amure, Gorky, Voronezh, and Surgut).

In the forest, wood processing, and pulp and paper industry new capacities are to be launched for logging and production of lumber and fiberboard at enterprises in Arkhangelsk and Irkutsk oblasts, Lithuania, and the Komi and Udmurt autonomous republics. Among the particularly important projects of the Ministry of Forestry, Wood Processing, and Pulp and Paper Industry are the paper facility at the Svetogorsk Pulp-Paper Combine in Leningrad Oblast and the Syktyvkar Forest Industry Complex. The sector plays an important part in consumer goods production. Among the start-up projects for 1983 are new shops at the Brest and Kishinev No 1 furniture factories and the Ilnava Furniture Combine in Lithuania.

More Goods for the People

The November 1982 Plenum of the CPSU Central Committee and the Seventh Session of the USSR Supreme Soviet emphasized with new force the need to use every means to enlarge the production, broaden the assortment, and improve the quality of consumer goods. This demand is also reflected in the start-up program for 1983.

Experience has confirmed the wisdom of the policy adopted in Uzbekistan of setting up branches of large industrial enterprises in rural areas. Construction and operations workers usually launch and incorporate such capacities ahead of schedule. In 1983 spinning facilities with 34,000 spindles each will be turned over at branches of the Andizhan and Bukhara cotton fabric combines and the Kokand stocking-spinning combine. Hundreds of weaving machines will be introduced at branches of the Bukhara and Tashkent textile combines.

New weaving facilities will appear in 1983 at the Ivanovo Factory imeni 8 Marta, the Novosibirsk Cotton Fabric Combine, the Donetsk Textile Combine, and the spinning-weaving factory for producing silk fabrics from staple fiber in Kobrin in Brest Oblast.

Large capacities for production of knitted outerwear are being prepared for launching at Brovary in Kiev Oblast and Bobruysk, as are facilities

to produce stockings in Andizhan Oblast and Frunze, soft leather in Yerevan, and sewn articles in Simferopol, Telavi, Yerevan, and Tashauz.

The enormous scope of housing construction going forward in our country could not be shown on even the largest map. In 1983 plans contemplate turning over 106.6 million square meters of total housing space, which is somewhat higher than the five-year plan assignment for this year.

The start-up program for 1983 envisions launching a new railroad line for Surgut to the Kholmogorsk deposit in Western Siberia. This is the pilot segment of the line from Surgut to Urengoy.

New docks and transshipment complexes will be introduced in the seaports of Novorossiysk, Vostochnyy, Tiksi, Odessa, and Tallinn, and the river ports of Rostov, Nadym, Kherson, and Vitebsk.

The intensive 1983 start-up program imposes strict responsibility for the organization of construction, for continued intensification of the impact of economic methods on raising construction efficiency and quality, and for strengthening discipline and accountability in all sectors. Launching all planned start-up projects on time or ahead of schedule is the principal challenge of construction workers in the third year of the five-year plan.

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CONSTRUCTION PLANNING AND ECONOMICS

GEORGIAN CONSTRUCTION ENGINEER CRITICIZES PLANNING

Tbilisi ZARYA VOSTOKA in Russian 3 Nov 82 p 2

[Article by Shota Mudzhirishvili, senior engineer in the construction organization and economics department of the Georgian SSR Gosstroy, under the heading "Economics, Organization and Management : Effect of Concentration"]

> [Text] The CPSU Central Committee and USSR Council of Ministers decree on perfecting the economic mechanism outlined a system of steps to restructure capital construction planning. One distinguishing feature of these steps is a comprehensive approach to resolving the tasks of fundamentally improving this important branch of the national economy.

Existing methods of plan substantiation and statistical record-keeping, scientific research done by USSR Gosstroy institutes shows, have not always reflected the state of affairs in capital construction accurately.

Unfortunately, there are still instances in which construction sites and projects are included in the plan after approval of annual work volumes. This entails scattering capital investments and diverts builders from projects previously begun. Thus, for the republic GlavUKS [main administration for capital construction], unplanned projects this year, just in the "education" branch, included construction of a school in Goristsikh village, Kazbegskiy Rayon, at an estimated cost of 1,715,000 rubles, and of a school in Gamardzhveba village in Tsiteltskaroyskiy Rayon. Neither did the plan anticipate construction of electric power supply projects in the villages of Gurianta, Meriya, Kviligiori and others.

An even more important shortcoming in the existing capital construction planning system is the clear lack of balance between the capital investment plan and the production capacities of construction organizations.

After adoption of the decree on perfecting the economic mechanism, appropriate agencies prepared a number of normative and instructional documents for comprehensive introduction. They touched as well on the question of balancing the plan with the production capacities of construction organizations. However, these documents made no substantial improvement in planning. In particular, the assignments being set construction organizations continue, in a majority of instances, not to conform to the material-technical and financial resources being allocated

them, as well as their labor resources and production capacities. Such disproportion hampers enterprise specialization in particular branches of construction.

There is another common problem in capital construction planning today. One and the same contractor organization is often building both production and nonproduction facilities. For example, mobile mechanized column No 139 of the republic Ministry of Construction's No 2 trust is installing a sanitary-engineering equipment plant in Telavi, but the list of work done by the MMC also includes a kindergarten and a children's stomatology hospital. This work organization was established by the trust, whose range of activity is also very broad. Subordinate organizations of trust No 2 are building housing and municipal-services projects, public-health, cultural and educational facilities, as well as production facilities. At the same time that trust No 3 of the Georgian SSR Ministry of Construction's "Tbilpromstroy" is building the "Detskiy Mir" department store in Tbilisi, the production building of the Tbilisi "Agregat" plant is being put up by a contractor organization of trust No 2.

The picture is similar in trust No 9 of the republic Ministry of Construction, whose MMC-11 is building agricultural projects.

Neither can we fail to note the existing republic construction production management structure. One often encounters parallelism in work organization in it. The inefficient dislocation of contractor organizations hampers precise specialization and coordinated "division of labor" among them.

We have already discussed the fact that the exact same construction organizations are involved in putting up schools, hospitals, kindergartens, canneries and wineries. In fact, construction organizations of the Ministry for Rural Construction and the "Gruzmezhkolkhozstroy", for example, are also working in parallel with mobile mechanized columns of the Ministry of Construction. For instance, this is true in Telavskiy, Gurdzhaanskiy and other republic rayons. Quite naturally, contractor organizations cannot increase their work volumes no matter how much they may wish to. This is precisely one of the reasons why the volume of work being done by such organizations rarely exceeds 1.5 million rubles.

By carefully examining capital construction planning questions, one can conclude that the desire to ensure against randomness arouses many small contractor organizations to conclude agreements for construction in many branches of the national economy. And they also do not reject unplanned projects whose construction in many instances involves material resources anticipated for planned projects in their annual program.

It is now unquestionably necessary that we re-examine the appropriateness of having two or even more contractor organizations whose functions duplicate one another. In fact, the presence of small contractor organizations has a negative effect on trust activity. Thus, 14 trusts of the republic Ministry of Construction have average construction-installation work volumes of 20 million rubles, which corresponds to group II organizations. Trusts Nos 5, 6, 9 and 10 have work loads of from seven to 15 million rubles, that is, in group III.

Are there reserves for increasing the load on these trusts to work volume category I or, alternately, are some of them unneeded?

This question has long been on the agenda, since the consolidation of existing construction organizations is an important factor in perfecting construction production management, not only in the Ministry of Construction, but throughout the republic.

In order to resolve this question in the affirmative, we need foremost to have available accurate data on the production capacities of construction organizations. Such data help create an accurate picture of the appropriateness of consolidating them in a certain region, with a view towards specializing them or eliminating them entirely. The contractor organization license can be of substantial assistance in this important work.

The construction-installation organization license provides a precise idea of the production capacities of these organizations and their use factor, amounts of commodity construction output and contract work, and start-up of completed projects.

A careful analysis of the information contained in the licenses of construction-installation organizations is enormously valuable to various services and departments, permitting a thorough examination of the branch aspect of construction management. But regionally, the importance of the license is in efficiently combining branch and territorial planning and management of construction. Such licenses are currently filled out by trusts of the Georgian SSR Ministry of Construction, but many republic-subordination construction organizations unfortunately do not have even an elementary concept of them. One can only express confidence that these organizations will immediately begin filling out licenses not in a formal way, but in order that they can subsequently become a basic document for construction organizations to plan contractor work with consideration of their specialization.

As we have already noted above, capital construction is being done by small contractor organizations of various departments in republic rayons. In view of the scattered nature of rural construction and the importance it has acquired in the comprehensive development of the rural economy, we need to create an optimum form of rayon development management in order to ensure that projects are put into operation in a planned manner.

To do this, it seems appropriate first of all to grant rayispolkoms the right to plan capital investments in developing their own rayons independently, linking them to the national economic development plan for the whole republic. That is on the one hand.

On the other hand, such a client must have in the construction organization a reliable and strong partner capable of independently resolving the task of comprehensive rayon development.

This would seem to be within the power of a single trust (association) based, or more accurately rebuilt on a base of small contractor organizations of the Ministry of Rural Construction operating within one rayon, with a construction-installation work volume of more than 30 million rubles. And in rayons in which the future construction of industrial enterprises is anticipated, contractor functions should be entrusted to the republic Ministry of Construction.

All this will enable us to eliminate surplus contractor organizations in republic rayons and, in so doing, concentrate all material-technical and financial resources in one organization, to run capital construction in two or even three nearby rayons to great effect and with better quality.

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CONSTRUCTION PLANS, PROBLEMS HIGHLIGHTED

Gosplan Official Interviewed

Moscow PRAVDA in Russian 2 Jan 83 pp 1-2

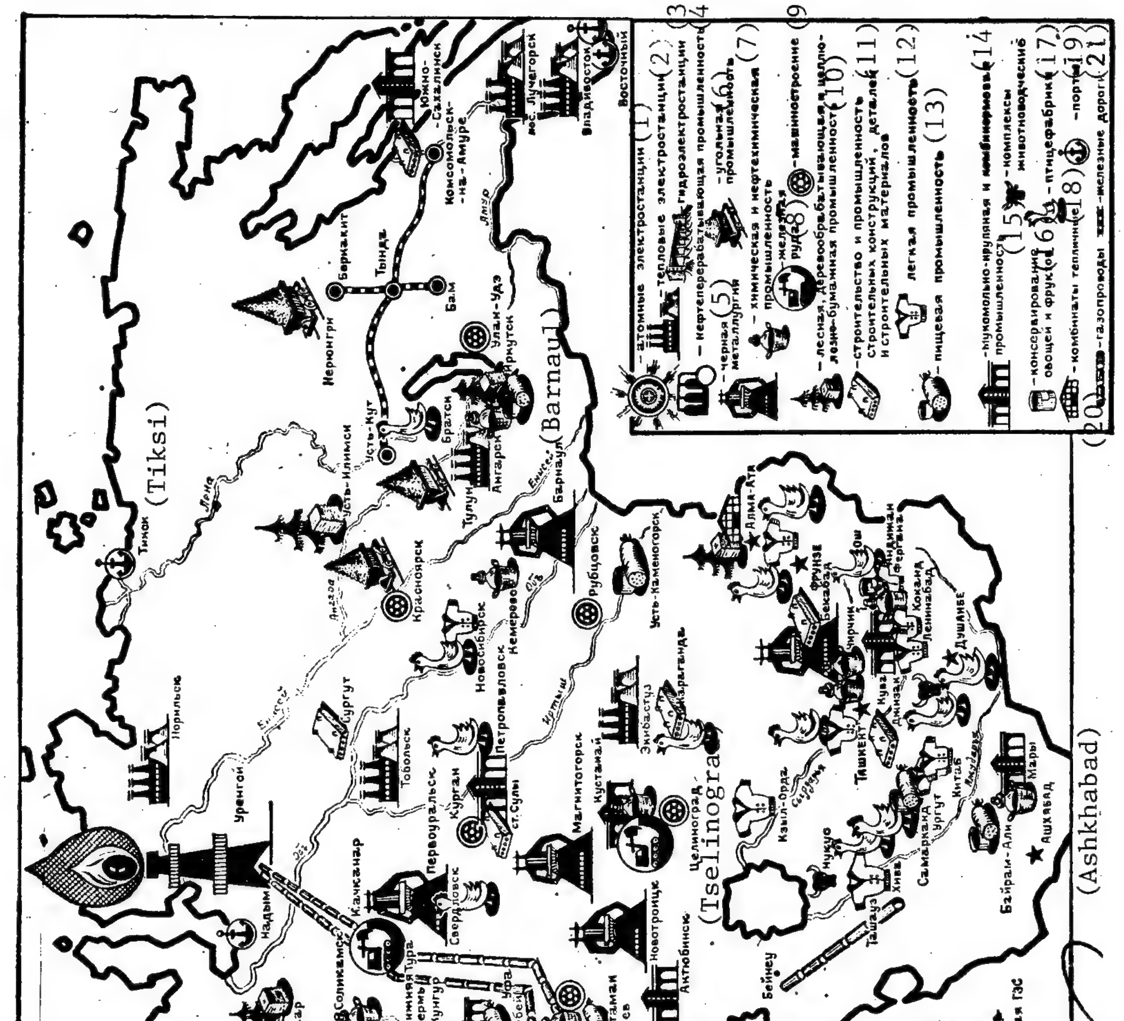
[Article by USSR Gosplan First Deputy Chairman V. Ya. Isayev: "USSR At the Construction Site"]

> [Text] B. Yershov's brigade at the Kalininskaya Nuclear Power Plant construction site, L. Okhorzin's collective of house-builders from Moscow, V. Zorin's power transmission line electricians collective in Urengoy..., these and thousands upon thousands of collectives in every corner of the country, well-aware of the importance of their contributions to strengthening the material foundation of our society, are beginning their first workday of the new year smoothly, in an organized, business-like manner, under the slogan: "Highly Productive Labor Every Hour, Every Day!"

What work faces construction workers in the new year? How can it best be done? USSR Gosplan First Deputy Chairman V. Ya. Isayev discusses this at the request of PRAVDA correspondent A. Chekalin.

"The map of new construction projects below [following page] shows only a small portion of the most important projects, but it is still impressive. Our entire country is truly one huge construction site. However, it is not only the volume of major work, of which we are rightly proud -- nearly 145 billion rubles -- which is important, but foremost the end results. That is, the prompt start-up of production capacities and projects, their high technical level, and the economical use of each ruble invested in the economy, each ton of metal and cement, each working minute.

The plan for the new year clearly exhibits a turn towards intensive methods of economic development. Thus, whereas state capital investments are increasing by 4.4 percent, the start-up of fixed assets will be increased 5.9 percent. Until recently, the proportion was different. We plan to achieve this higher resultancy by increasing the share of funds for renovating and retooling existing enterprises. It is 1.1 billion rubles higher than was anticipated by the five-year assignment. Also important is the fact that expenditures on equipment have risen appreciably, from 39.1 to 42.1 percent, in the capital investment structure


(Tallin)
(Tiksi)
(Barnaul)
(Tselinograd)
(Ashkhabad)
(Yerevan)

Key (to map on preceding page):

1. Nuclear power plants
2. Thermal electric power plants
3. Hydroelectric power plants
4. Oil refining industry
5. Ferrous metallurgy
6. Coal industry
7. Chemical and petrochemical industry
8. Iron ore
9. Machinebuilding
10. Timber, wood-processing, pulp and paper industry
11. Construction and construction components, parts and building materials industry
12. Light industry
13. Food industry
14. Grain milling and mixed feed industry
15. Stockraising complexes
16. Fruit and vegetable canning
17. Poultry farms
18. Hothouse combines
19. Ports
20. Gas pipelines
21. Railroads

and the share of construction-installation work has decreased correspondingly. This tactic will help reduce unfinished construction by the end of the year, although it will unfortunately still exceed the norm.

But the first say naturally goes to the construction workers themselves. By planning their activity in terms of commodity construction output and making active use of credit levers and other new methods of management, they are called upon to make a decisive contribution to accelerating the rate of increment in social production and national income. And the rates anticipated for the current year are higher than those achieved during the first two years of the five-year plan.

This concerns first of all development of the fuel-energy complex, the foundation of our economy. In order to improve its structure and reduce the share of petroleum as a fuel at boiler rooms and GRES's, we are boosting the development of nuclear power engineering in the European portion of the country. "Millioner" power units will go on stream at the Zaporozhskaya, Kalininskaya, Kurskaya and Chernobyl'skaya AES's and a 1.5-million kilowatt unit will be put into operation at the Ignalinskaya Nuclear Power Plant. In the eastern regions, where there are greater reserves of hydroelectric power and coal, preference has been given to thermal electric power plants and GES's. We will finish completely installation of the first GRES in Ekibastuz, operating on open-pit mined coal, and the Surgut GES, operating on gas. The capacity of mines and open-pit coal cuts will increase by nearly 20 million tons. The territorial-production complexes being created on a coal deposits base are playing an ever-increasing role in the country's unified economy. But there are quite a few problems as well. The most important one is probably to learn to develop all elements of the complexes harmoniously, without permitting the social infrastructure to lag.

As before, Western Siberia, where more than half the gas being produced in the country is now being extracted, remains the great construction project of our era. To transport it, we intend to build the Urengoy - Uzhgorod and Urengoy - Novopskov pipelines and bring the underground Urengoy - Petrovsk main pipeline up to planned capacity; to provide cities and settlements with gas, we plan to lay upwards of 1,500 km of pipeline. Petroleum products pipelines will be extended by 1,400 km. In order for this to be feasible, we need to accelerate installation of compressor and pump stations on these main pipelines with the help of the unit-set method and to develop the oilfields faster.

The primary structural material will apparently continue to be metal for a long time. In terms of steel and rolled metal production, the USSR is first in the world. But the demand for them is still not being met. And we need high-quality metal with prescribed properties. The situation will improve with the start-up of existing facilities at the first-born of non-blast furnace metallurgy in Staryy Oskol and new production facilities at plants in Zhdanov, Orsk, Bekabad, Moscow and elsewhere. The third and seventh "millioner" coking batteries in Altayskiy Kray and Magnitogorsk will be producing high-quality coke. Thanks to renovation of existing iron ore mining enterprises and the construction of new ones, production will increase by 21.6 million tons; concentrate production will increase by 6.8 million tons. Large facilities will be put into operation at ore-concentration enterprises in Belgorod Oblast and Karelia.

At the same time, products of chemical industry are being used increasingly in place of metal as structural materials. This year, the production of plastics and synthetic resins will be increased more than nine percent. And builders are preparing to put new capacities into operation. Mineral fertilizers, chemical fibers and thread, and detergents industry is gathering increasing strength. Nevinnomyssk, Dorogobuzh, Kemerovo, Mary, Nizhnekamsk and Angarsk are only some of the places on the map where new chemical production facilities will be put into operation.

The foundation of technical progress and increased labor productivity in all branches is rightly considered to be machinebuilding. Scientists, designers and engineers have developed quite a few models of highly automated equipment, modern machines and machinery. Enterprises in dozens of cities are constantly being modernized to produce them. And although this must often be done while existing production continues, many collectives, and especially those in the Central Urals, have overcome the psychological barrier and learned to do the renovation quickly, without harm to their own economic indicators. Simultaneously with the modernization of existing plants, we are building true giants of machinebuilding such as the Krasnoyarsk Excavators Plant, the "Atommash" plant and many others.

Precise functioning of a unified national economic complex depends largely on the smoothness of the transport conveyor. The state is allocating large sums to build new railroad lines and second tracks, to electrify and automate them. BAM construction continues; through train traffic will open on it in 1985. Transshipment complexes will begin operating in Murmansk, Riga, Magadan and other seaports; mechanized docks will be put into operation on rivers, including ones in Western Siberia, and airport runways will be put into operation as well. About 10,000 km of hard-surface roads will be built. In a word, we will be doing a lot of building, but in order to haul freight better, the transport enterprises

and organizations should also introduce more quickly the new principles of leadership outlined in the recent CPSU Central Committee and USSR Council of Ministers decree on transport.

As a whole, production of Group "A" industrial output is to be increased 3.5 percent. But even higher rates have been set for Group "B" -- 4.5 percent. In practically all republics there will appear new or retooled production facilities making cotton fabric and thread, hosiery and knitwear, and nonwoven materials. Approximately a third more capacities will be put into operation at furniture enterprises than were put into operation this past year.

Builders will make a substantial contribution to resolving the Food Program. Poultry farms, stockraising complexes, hothouses, canneries, bakeries, grain elevators, and so on, will be put into operation. The number of modern stores, refrigerators and kolkhoz markets will be added to in many population centers. Approximately 10 million people will improve their housing conditions. Buildings will go up for new schools and children's institutions, hospitals, clubs, consumer services buildings, vehicle service stations and household appliance repair enterprises.

There are no construction sites of secondary importance in the plan. All must be put into operation on schedule and well-built. This is not an easy task. The state of affairs in construction was sharply criticized at the November (1982) CPSU Central Committee Plenum. The causes of its shortcomings lie in the sphere of planning major projects and in low implementation discipline among builders themselves. Bringing order to construction is one of today's central national economic tasks.

Fulfillment of plans for start-up and started projects must become law. Labor collectives have available to them large reserves for improving labor productivity, with which they should arm themselves right at the very start of this year. Every opportunity exists for bringing the start-up of certain capacities closer and, in so doing, lessening the fourth-quarter load, when we still plan to put a majority of the projects into operation. We need to put each construction site in better order, make the economical expenditure of all types of resources the norm, and increase production, management and labor discipline.

Construction Organization Problems

Moscow PRAVDA in Russian 11 Dec 82 p 2

[Article by Candidate of Technical Sciences O. Novikov, Pro-Rector of Moscow State University imeni M. V. Lomonosov, under the heading "Problems and Discussion": "Responsibility for the Construction Site"]

> [Text] There are still many problems in capital construction. The organization of construction itself is largely unsatisfactory. Putting this branch in order is a central national economic task. Several ways of resolving it are examined in this article.

Economists use the concept of plan linkage to previous decisions. Currently, this linkage is often a great hindrance to carrying out the assignments of the

next year of the five-year plan precisely on schedule. In fact, in order to complete projects already begun without beginning new ones would require more than five years. A natural result of this scattering is a nearly two-fold overrun of normative installation schedules.

State losses due to the fact that the estimated cost of production capacities increases during the construction process, with no change in their quality characteristics, are also measured in the billions of rubles. One other cause of reduced efficiency is the unjustified growth in unfinished construction.

Steps are now being taken to reduce the overall number of construction sites. It is at the same time important to find methods which will not permit future "plan linkage" growth.

Many causes of shortcomings in the branch lie in the economic and legal interrelationships of construction participants with society as a whole, with each other and also with local agencies. Thus, the "Krymmorgidrostroy" trust, on instructions from local agencies, began installing a track and field sports complex with stands, although no such project was designated in the plan. Construction workers were diverted as well into so-called "tutorial assistance." In principle, this is a good thing, if assistance to, say, rural laborers is given from internal reserves. But it is often done by taking material and labor resources away from planned projects.

Heretofore, in construction, as in a number of other branches of the economy, no satisfactory solution had been found to the problem of properly combining personal, collective and national interests. The existing mechanism for running the economy sometimes did more to separate related units than it did to unite them and failed to orient them towards achieving an end result faster.

Judge for yourselves. The replacement of client advances issued to contractors for unfinished construction-installation work by the new form of crediting places increased responsibility on builders. If a new capacity is not released for operation on schedule, builders must pay the bank a higher rate of interst. But such failures to meet schedules often occur because equipment and good-quality planning documentation fail to arrive on time through the fault of clients or because rolled metal manufacturers are operating poorly.

And what about the responsibility of the distributor of capital investments himself, that is, the client? The client would seem to necessarily incur some perceptible material loss if he fails to receive output at the designated time from the new construction project enterprise, if the monies spend on its installation yield no return. Alas, failure to put projects into operation on schedule are not detrimental in any way to the interests of the future manager of the plant. This occurs because the state grants the developer monies for construction "free", as a rule.

But if the client paid the state a certain percentage of his profit as a function of the amount of capital investment and the time for which it is used, thus reducing the size of his own incentives funds, he would strive to ensure the start-up of the project a little faster.

Responsibility for the effective use of state funds is also inadequate among other construction participants. Although the work of planning organizations is paid for on the basis of the end result of their labor, for complete documentation on a project, and although they are encouraged to lower the estimated cost of the work, volume indicators are still used in evaluating the activity of planners, rather than their real contribution to improving capital investment effectiveness. It is no accident that the actual cost of installing a facility often turns out to be higher than planned. Clients often understate the cost of a project intentionally, with the consent of the planners, in order to get it included in the plan easier. This leads to planning disorganization. In the 10th Five-Year Plan, the difference between the planned and actual prices of projects "ate up" half the increment in capital investments. Moreover, builders were forced to strengthen their own estimate documentation verification services. Thousands of specialists were essentially laboring idly.

We need to intensify the interest of the main participants in the investment process, the contractors, clients, planners and USSR Gossnab agencies, in reducing major work schedules and costs, as well as amounts of unfinished construction.

It may be maintained that it was for precisely this purpose that bonuses for putting projects into operation on schedule and ahead of schedule were instituted. The award was set at up to three percent of the estimated cost of construction-installation work, with a possible 1.5-fold increase for shortening schedules. Along with construction workers, the clients, planners and suppliers also receive bonuses, up to 30 percent of which are issued in the form of advances. Quite an incentive, it would seem!

But that's in theory. In fact, the bonus for putting projects into operation plays no substantial role for builders (all the more so for the others). Moreover, its importance is decreasing. Whereas the total such incentives paid in 1979 comprised 2.1 percent of the calculated wage, it was nearly two-fold lower the following year. A bonus doesn't "work" in such amounts, that is, it does not arouse people to achieve a national economic end result faster. The bulk of it, moreover, is paid several months after the project has been put into operation.

It would seem appropriate to make this type of incentive regular. That is, to issue an advance bonus for starting up a project, to do it quarterly, and to increase its amount substantially.

But how do we get all participants in the construction process to try to keep the estimated cost within the amount set by the plan and to keep unfinished construction at the very least at the planned level?

We have already discussed incentives for clients. Now about incentives for builders. The lack of interest in reducing "unfinisheds" is to be explained largely by the "expenditure" concept of setting estimated cost. Today, the more expensive a project, the higher the builders' labor productivity and the larger the wage fund. In fact, labor productivity depends directly on the amount of money spent.

The changeover to planning construction production on the basis of nominal normative net output does not, in and of itself, ensure greater production efficiency. Nominal net output is in fact not recorded directly, but normatively, that is, relatively. And whereas builders previously preferred expensive, materials-intensive jobs, the more labor-intensive operations now turn out to be advantageous. We've traded one pot-hole for another. It could happen that construction-installation organizations would cope with their own plan indicators in terms of normative nominal net output, but there would be no actual improvement in capital investment effectiveness or speeding up of the start-up of projects.

The system of incentives for participants in installing capacities and projects must, I feel, be structured exclusively as a function of the impact obtained by reducing the time involved in construction, the level of unfinisheds and the estimated cost of the work. Its overall structural principles could be the following. A payment is set for capital investments, to be collected from the client. The material incentives funds of contractor organizations, planners, Gossnab workers and the client are increased when the indicated three groups of indicators are fulfilled or overfulfilled. And they must depend directly on the impact. It is not difficult, technically, to determine that impact. And the bonuses would naturally be made along each of the three lines. But if the planned level of impact is not achieved, the guilty party reimburses the damage caused the state. For example, due to delays in completing construction. The amount of damage would be measured by the amount of capital investment frozen and the amount of profit not obtained which the enterprise being created was planned to have generated. Today, the state has no guarantee that the fulfillment of individual assignments by quarter will ensure the prompt start up of a construction project as anticipated by the normatives. But the opportunity of recompensing damages would permit a substantial increase in the advance bonus, which would essentially be transformed into the basic bonus.

As concerns unfinished construction, it would be appropriate to encourage a reduction in it and installing projects "within" schedule proportionally to the impact of accelerating the circulation of monetary means.

I should like to note once again that it is impossible to achieve fundamental advances in construction by increasing the responsibility of the builders alone. We need the interest and concrete responsibility for the construction project of all the main participants in the investment process. We need to strengthen cost accounting at all levels of management.

Stroybank Official on Financial Discipline

Moscow STROITEL'NAYA GAZETA in Russian 17 Dec 82 p 3

[Article by V. Kulikov, chief of the contractor organization financing and crediting administration of the USSR Stroybank, under the heading "Managing In A New Way": "Entirely Understandable Strictness"]

[Text] The exceptional importance of using effectively the enormous funds being allocated for capital construction was

re-emphasized at the routine November Plenum of the CPSU Central Committee and the Seventh Session of the USSR Supreme Soviet. Strict monitoring and an active struggle against violators of planning and financial discipline at construction sites are necessary conditions to resolving this task successfully. An important place in this work is given to USSR Stroybank institutions.

The role of credit in construction has been appreciably strengthened as a result of implementation of the steps worked out by the party and government to perfect the economic mechanism. This is specifically connected with the approval of a new procedure for calculating between clients and contractors, as well as with rejection of the system whereby clients advance to contractor organizations expenditures on unfinished production. Bank credit is now granted for these purposes.

The growth in credit relations testifies to the increased role of credit. In 1981, contractor organizations were issued loans of nearly 148 billion rubles, two-fold more than in 1976. In this regard, about 80 percent of the credit relations structure is occupied by credit for expenditures on unfinished production. The share of credit in sources shaping circulating capital for the general construction ministries has reached nearly 75 percent.

Bank interest policy has become more active under the new management conditions. Broad differentiation of interest rates for the use of bank loans as a function of conditions causing an additional demand for funds permits practical implementation of the principle of credit continuity.

Credit preferences are given to those contractor organizations which carry out plan assignments and retain their own circulating capital, repay loans promptly, and adopt counter plans and obligations to put production capacities and projects into operation ahead of schedule. Thus, as of 1 January of this year, 512 organizations enjoyed preferential terms (half the interest rate for using funds).

At the same time, the bank charges higher interest to those who do not carry out plan assignments, who use their own circulating and loaned capital poorly and permit loans to the bank and to suppliers to remain long overdue. For these reasons, 730 organizations were transferred to special credit terms at the start of the current year.

These strict measures have in many instances helped improve production-economic activity and improved the financial position of contractor organizations. This year, 389 organizations of the USSR Ministry of Construction of Heavy Industry Enterprises, USSR Ministry of Industrial Construction and USSR Ministry of Construction were transferred to general credit conditions in connection with their having taken steps to improve their work.

In light of such bank interrelationships with contractors, the assertion by individual economists that the financial difficulties of construction organizations result foremost from the payment of interest for the use of bank credit is nothing short of astonishing. In our view, the facts are quite different: there are still too many shortcomings in the economic-financial activity of the contractors.

Last year, the general construction ministries failed to carry out the plan for putting production capacities and projects into operation and the commodity construction output plan. As a result, unfinished production turned out to include many expenditures for projects whose planned start-up schedules were not met.

In spite of development of the production base and a significant increase in the value of fixed production assets and the availability of machinery to labor, the contractor organizations of the general construction ministries have decreased the amounts of work done and the return on capital in recent years. Nearly half the organizations of the USSR Ministry of Construction of Heavy Industry Enterprises, USSR Ministry of Industrial Construction and USSR Ministry of Construction have not carried out labor productivity growth assignments and have permitted large wage fund overexpenditures.

Although a constant lowering of the net cost of construction-installation work and a constant growth in profit have been observed for contractor organizations as a whole, a considerable number of them are still not coping with plan assignments in terms of these indicators and many are permitting losses. Such organizations comprise nearly 40 percent in the general construction ministries system.

As a consequence of violations of state planning, financial, payment and credit discipline, the total higher rates of interest for the use of loans which has been paid the bank has comprised nearly half of all contractor organization interest payments. What would this fact testify to if not the urgent necessity that ministries and their subdivisions seek out reserves for ensuring the prompt start-up of capacities and projects, for lowering the net cost of work being done and increasing profit, for the economical expenditure of material and financial resources!

The level of economic and financial work must be significantly higher. For example, what reserves do we see for improving its financial position as being available to the USSR Ministry of Construction of Heavy Industry Enterprises today?

These are, first, involving in economic circulation or the implementation of above-plan reserves material values which have accumulated at warehouses -- nearly 40 million rubles worth.

Second, resolving problems with clients on the reimbursement of more than 140 million rubles in expenditures on unfinished production for which credit has not been extended by the bank as a consequence of the fact that these expenditures were either over the estimated cost of the work or were made for projects not accepted for financing.

Third, stopping the faulty practice of releasing to clients capacities and projects with unfinished work, which permits obtaining more than 300 million rubles at present.

Given this situation, would it be legitimate to grant certain ministry organizations credit without interruption, unhampered, with no hope at all that it will be repaid promptly?

Could we really have invested credit resources, for example, in the "Batumi" house-building combine of the Georgian SSR Ministry of Construction which, during the first nine months of this year, permitted the cost of work done to increase by more than 500,000 rubles, had a shortfall of own circulating capital which exceeded the normative three-fold, and released 3.5 million rubles worth of commodity construction output with unfinished work, and not receive, because of this, so much as one kopeck from the clients?

Analysis of the experience accumulated in work under the new credit conditions dictates the necessity of more energetically restructuring all participants in the investment process, confirming the thorough substantiation of the demand by the November (1982) CPSU Central Committee Plenum that state and implementation discipline be strengthened in each production sector.

Normative Net Output Trial Evaluated

Moscow STROITEL'NAYA GAZETA in Russian 5 Jan 83 p 2

[Article by V. Yevstaf'yev, department head at the USSR Ministry for Industrial Construction's Technological Design Institute, under the heading "Management In the New Way": "Three Conclusions After the Trial"]

[Text] The USSR Ministry for Industrial Construction began an experiment in changing enterprises of the construction industry over to planning and evaluating economic activity on the basis of normative net output in 1976, when there still were individual normatives divorced from all other economic indicators.

Today, upwards of 400 associations and enterprises of the ministry are operating in the new way. If plan fulfillment in terms of NNO [normative net output] for the first half of 1982 is compared with the same period in 1981, it is 1.5 points higher. An increase in rate of NNO growth was observed in 70 percent of the plants, 15 percent of which achieved it by significantly overfulfilling the plan in terms of other output, but the remainder achieving it through products-list shifts and by releasing new labor-intensive items.

Analysis of the causes of NNO growth rate exceeding commodity output growth shows that there is in many instances analogous growth in the normative labor-intensiveness of production (in stable norm-hours). One example would be the indicators of the Minsk Nos 1 and 2 KPD [large-panel house-building combines]. The first carried out the plan in terms of commodity output by 101.6 percent in wholesale prices, the second -- by 102.6 percent; fulfillment in terms of NNO was 104.4 and 99.5 percent, respectively, and in terms of normative labor-intensiveness -- 104.3 and 98 percent, respectively. The situation is similar at many other enterprises as well.

This permits the conclusion that NNO more objectively expresses the results of the labor collective's own efforts and is more reliable for evaluating the level and dynamics of worker labor productivity. It permits better substantiation than commodity output in wage fund planning and better monitoring of its use. Inasmuch as determining the wage fund demand based on plan fulfillment in terms of commodity (gross) output often leads to granting enterprises the right to obtain larger amounts of funds than they need to pay for workers' labor, or the

reverse, might put them in a difficult position as a function of growth or reduction in the materials-intensiveness of the output.

For example, the Cheremkhovskiy Reinforced Concrete Products Plant has an overexpenditure of 50,400 rubles when the wage fund is determined based on level of commodity output fulfillment (93.1 percent), but a savings of 4,800 rubles when based on level of NNO fulfillment (102.3 percent). And the reverse, the Krasnodarskiy Non-Ore Materials Combine has a savings of 7,500 rubles when wages are calculated from commodity output (102.9 percent), but an overexpenditure of 32,900 rubles from level of NNO fulfillment (93.3 percent).

Were enterprise operation to be evaluated based on commodity output, the Krasnodarskiy combine would have an unmerited wage savings, since the production volume rose not due to an increase in the collective's labor expenditures, but due to growth in the materials-intensiveness of its output.

Based on this example and others, a second conclusion can be drawn, that, regardless of whether an NNO adjustment yields a savings or an overexpenditure, use of this indicator to monitor wage fund expenditure corresponds better to the dynamics of live labor expenditures and the actual requirements of enterprises for wage funds, as well as the most objective evaluation regarding the relationship between labor productivity growth and average wage.

The next positive instance of the effect of NNO on the enterprise economy is that it facilitates lowering production materials-intensiveness, not only theoretically, but also practically. Thus, during the first half of 1982, the proportion of direct material expenditures in commodity output was 56.4 percent, whereas it was 58.3 percent during the same period in 1981. This equals saving about 22 million rubles in material resources. And a lowering of the level of material expenditures per ruble of output is characteristic for a majority of enterprises (about 70 percent).

A third important conclusion can be drawn from the above, that NNO, because it is free of materials expenditures, helps reduce output materials-intensiveness and creates prerequisites faborable to saving resources.

However, it should not be assumed that the introduction of NNO has solved all the economic problems of increasing the efficiency of social production. The indicator does not operate in isolation, but in a system and interlinked with other planning indicators. For example, we continue to plan in physical measures (cubic meters and tons). Volume of output sold in wholesale prices also remains a primary criterion for evaluating plant operation on a rayon, city and oblast scale.

The stimulating influence of NNO on the economy is also retarded by subjective factors. Thus, due to a lack of intraplant net output normatives at many enterprises, NNO has not become integrated for evaluating and stimulating the labor of brigades, sectors, shifts and shops. Without this, the effectiveness of the indicator decreases.

In our opinion, the very methodology for calculating net output normatives also needs improvement, especially for prefabricated reinforced concrete items. The

procedure adopted by the USSR State Price Committee for approving NNO's for reinforced concrete products in price list No 06-08-1981/1 has a number of shortcomings, foremost that it completely divorces the methodology for calculating wholesale prices (differentiated by zone) from the methodology for calculating NNO (unified throughout the country). In this case, it cannot be maintained that NNO is part of the price including worker wages which is deducted for social insurance and normative profit.

Here is a graphic example. The average wholesale price of a cubic meter of reinforced concrete products is 200 rubles 76 kopecks for the Nizhnevartovsk Construction Materials Plant (an area equivalent to Far North rayons), and the average net output normative is 26 rubles 03 kopecks, or 13 percent of the price. At the same time, wages-intensiveness in this particular region is approximately 18.5 percent, but the calculated net output of a unit of prefabricated reinforced concrete is 69 rubles. That is, total NNO is more than two-fold less than the calculated total net output and even 1.5-fold less than full wages-intensiveness.

A procedure similar to that used in calculating NNO for reinforced concrete articles was also established for calculating NNO for commercial concrete, slurry and concrete products using price list No 06-14-01-1981, that is, wholesale prices by zone, while the net output normatives are unified. This led to a situation in which the plant had 1.84 rubles of wages per ruble of NNO in the 1982 plan, which makes no economic sense whatsoever.

But the primary trouble is not even how many rubles of wages a ruble of NNO accounts for, but rather the fact that there is a large range of profitability in the production of items. Whereas the difference in the price for a unit of output varies 11-fold, the difference in NNO for the exact same products list varies 26-fold!

It is our firm conviction that wholesale prices and NNO must be built on a single methodological basis. The methods instruction state: "In branches where zonal (belt) prices are used, net output normatives are set as applicable to zonal (belt) prices in effect for the enterprises producing the output."

Only bringing the net output normatives and existing system of wholesale prices into accord with one another in a given region can yield the necessary impact from replacing the indicator of "gross output" with the NNO indicator.

There are also other problems which have arisen since the introduction of NNO. For example, a substantial increase in plan-recording operations at plants. Their small economic services, which are overloaded with routine work as it is, now have no opportunity at all to make economic analyses and improve planning work. And the effective organization of modern production is impossible without them.

A way out must be found. And there is one -- improve the effectiveness of and mechanize the labor of economists, introducing automated economic-planning calculation systems extensively.

Stroybank Official Scores Weak Plans

Moscow STROITEL'NAYA GAZETA in Russian 7 Jan 83 p 3

[Article by USSR State Prize winner A. Chetyrkin, chief of the USSR Stroybank administration of financing and crediting planning work, under the heading "We Continue the Discussion: Considering All Ties": "A Prisoner of One Percent"]

[Text] It is asserted that facts are stubborn. But the more stubborn facts are, the more important it is to comprehend them, to understand their nature.

It is obvious that plans for 1983-1985 construction projects must exceed development indicators of past years by an order of magnitude, and not by just a few percent. This stems from the 26th Party Congress directives on concluding the transition of the national economy to a primarily intensive path of development. However, the plans being produced now differ little in their characteristics from the plans of the previous five-year plan. They generally have not lowered specific capital investments or reduced construction schedules and labor intensiveness and have reduced only insignificantly production labor-intensiveness and the expenditure of raw and other materials and fuel. To build following such weak plans is now an impermissible extravagance. Why is this such a critical problem?

First group of facts. It is known that one need not expect a substantial increment in labor resources in the 11th Five-Year Plan. New industrial enterprises can count only on personnel who will be freed as a result of the renovation and retooling of existing production facilities.

However, the USSR Stroybank has established that an overwhelming majority of the plans for renovation and retooling will be carried out counting on an increment in the number of workers or (at best) on preserving it at the previous level. The striving of certain ministries to develop their branches by increasing the number of workers seems strange. For example, the USSR Ministry of Food Industry has planned a 48 percent increase in the number of workers at 25 enterprises to be renovated.

Planning and projecting in this way means disrupting the start-up of many new enterprises or drawing personnel away from existing capacities and thus lowering the equipment use factor at them.

Another group of facts. Ordinarily, long construction schedules and an enormous amount of frozen capital investments are explained by a plan imbalance and inadequate construction-installation organization capacities. This only partly reflects the actual state of affairs. Long construction time and long capacities utilization time are generally predetermined back during planning and are fixed in the projects. How?

The unit power of units and technological equipment have been increasing intensively for a number of years. In and of itself, this trend is quite intelligent. The larger an enterprise, the greater its capacity, the easier it is to obtain the best indicators in terms of specific capital investment, production labor-intensiveness and output net cost. But it is permissible to ask: what about

construction duration and the time involved in mastering capacities? The time factor and losses through the freezing of capital investments are ordinarily not taken into account when choosing an optimum enterprise or construction line size.

This is one of the primary reasons for the serious lag in construction schedules and the start-up of capacities behind technically developed countries, where the overwhelming majority of production projects are put into operation within two or three years.

Enterprise projects developed for individual lines must ensure a high level of technical-economic indicators for each line, not just for the whole enterprise, whose construction may continue for many years.

It is hard to meet this demand without changing our approach to resolving the task. In many instances, it is appropriate to reduce the size of enterprises being put up while, at the same time, bringing them closer to sources of raw material and consumers of output. This should not be confused with a slight increase in specific capital investments. Reducing capacities may turn out to be advantageous, since it brings closer the time when commodity output and profit will be obtained.

The time factor influences the effectiveness of activity of the entire branch with exceptional force. We should therefore change the procedure for calculating the reimbursement period, with mandatory consideration of losses from frozen capital investments until the funds spent on construction have been returned in full. As concerns construction and capacities utilization duration normatives, I am deeply convinced they have played a negative role in planning.

Thought should be given to including among the basic plan technical-economic indicators a calculated construction duration which, as distinct from normative duration, would take into account the features of the site, methods of doing the work and contractor opportunities, and would reflect the actual time involved in installing specific projects.

One other group of facts. In many projects, cases of the use of original and effective new technical resolutions are quite rare or entirely absent. Does this not occur because we have practically no competitive planning. There are authoritative resolutions to this problem, there are Temporary Provisions, and not just for planning on a competitive basis. One might say: why complicate things, since plan quality is monitored by expert-appraisal agencies. True, an expert appraisal can return a plan for additional work if previously tried and tested technical resolutions were not used in it. But expert appraisal cannot reject a plan in which there are no new technical concepts, effective new resolutions, not previously worked out by anyone.

Speaking about plan quality, we must not fail to touch on questions of their cost. Expenditures on planning-surveying work comprise an average of about two percent of capital investments. This is a small percentage. In foreign practice, the cost of planning work is 4-6 percent or more. But even the two percent here does not all go to pay for planning. A quarter of it is deducted to the budget in the form of planning organization profits, and approximately a third of the funds are spent on developing documentation not used in construction.

Thus, only one percent of the capital investment remains to pay for the planning work actually needed.

It is time to put a brake on the efforts of planning organizations to increase profit, which leads to refusals to seek out the best planning resolutions, to the substitution of compilations of prepared, repeatedly used developments for them.

It would be extremely useful if we succeeded in speeding up the development of new methods of determining the cost of planning-surveying work to this end: to create a direct dependence between the quality and effectiveness of a plan in construction and its cost. It really should be clear that the cost of plans whose implementation can provide a substantial national economic impact must be significantly higher than current prices. Incidentally, this does not require additional funds for planning work, since the greater plan balance would permit a reduction in the number of plans being developed. At the same time, the price-formation system should be simplified.

Serious mistakes are being permitted in planning project work. Many ministries work out plans with a "reserve," although it is known in advance that there will be neither sufficient construction organization capacities nor sufficient funds allocated nor sufficient material and labor resources to implement them. The USSR Ministry of Ferrous Metallurgy, RSFSR Ministry of Food Industry, RSFSR Ministry of Textile Industry and several other ministries created planning documentation reserves for six or more years ahead in the 10th Five-Year Plan.

The serious shortcomings in estimate-planning work often generate a sceptical attitude towards planning and towards specialists working in this important branch of the national economy. The evaluation of the state of affairs in construction provided by Yuriy Vladimirovich Andropov at the November (1982) CPSU Central Committee Plenum applies in full to planning: "Bringing order to capital construction is one of the central national economic tasks."

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MATERIAL CONSERVATION IN CONSTRUCTION INDUSTRY URGED

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Examples of Leading Techniques

Moscow EKONOMIKA STROITEL'STVA in Russian No 10, Oct 82 pp 67-70

[Conclusion of an article, begun in ES, No 9, 1982, by Candidate of Economic Sciences Yu. N. Shumyachkin, senior scientific associate at the USSR Gosstroy NIIES (Scientific Research Institute of Construction Economics), under the heading "At the USSR Exhibit of National Economic Achievements : Saving Material Resources in Construction When Introducing Progressive Forms and Methods of Material-Technical Supply and Set-Assembly"]

[Text] Materials combined under the topic "PKB [planning-design bureau] Economic Materials" discuss leading experience in organizing the manufacture of nonstandard, non-series produced output, layout, welding and other auxiliary processes, semifinished products, increasing technological readiness, warehousing and storing material resources, and also their centralized assembly into sets.

The Lyublinskiy Set-Assembly Center and Stroydetal' Combine of the Glavmosstroy UMTS [Mosgorispolkom Main Administration of Building Materials and Construction Parts material-technical supply administration], Vil'nyusstroy Trust PKB and Zhdanovstroy Combine folder UPTK [not further identified] are of particular interest to specialists.

The Lyublinskiy Set-Assembly Center of the Glavmosstroy UMTS Mosstroysnab Trust No 1 is a large set-assembly production complex. The center is on a site of more than 40 ha, with a total warehouse area of 80,000 m^2 and various service facilities designed for a warehousing trade turnover totalling 50 million rubles per year and an annual freight turnover of 530,000 tons. The warehousing and production buildings are built with progressive components and provided with modern equipment and technology. The following processes are performed here:

preparing reinforcing and measured-length rolled metal sections and manufacturing reinforcing grids and frames for monolithic reinforced concrete components for standard and individual construction -- up to 1,000 tons of metal. The reinforcing shop is equipped with automatic electric arc and electrocontact welders, broaching lathes, power shears, foil-gangs and other equipment. Some 11.1 tons of reinforcing and 13.9 tons of rolled metal per year is saved here through the efficient use of scrap and by cutting metal efficiently;

preparing rubbish chute shaft elements mechanically in jigs which install the intake flaps -- more than 20 kilometers of asbestos-cement pipe per year.

The annual economic impact of this sector's activity is 7,620 rubles and the savings in asbestos-cement pipe is 1,200 meters per year;

centralized filling of the metal framework for glass doors made of 6-8 mm thick reinforced glass -- 2,000 units per year, including installation of rubber seals, aluminum plating and latch fittings, which permitted efficient glass cutting, eliminating glass breakage and reduced labor expenditures at construction sites. Given an annual production volume of 700 glass door panels, the annual savings reaches 200 m^2 of window glass, or 1,400 rubles.

Stroydetal' Combine of the Mosotdelprom Trust of the Glavmosstroy UMTS, which is the main administration's experimental base for introducing progressive finishing output, has demonstrated economical new semifinished finishing products. They include synthetic primers without drying oils, permitting a savings of more than 500 tons of boiled drying oils and natural drying oil and about 250 tons of edible vegetable oil in 1981, and a putty made of water-repellent chalk, made to replace putty using natural drying oil.

The combine as a whole annually produces about 50,000 tons of primer, chalk compounds, tints, undercoat, mastic and other output. The combine cuts 11.5 million square meters of wallpaper and makes up sets of it for rooms and apartments; it cuts out and fuses into carpets more than 1.6 million square meters of linoleum sized to areas and apartments and delivers them to homes together with skirting.

The centralized manufacture of finishing products under factory conditions permits a savings of up to 1.5 million rubles per year. The combine has set up the manufacture of scatter rugs, floor tile and other items made from linoleum cutting scrap, resulting in a savings of about 110,000 m^2 of linoleum and the production of additional output worth more than 200,000 rubles per year.

Wallpaper cutting and make-up into sets for rooms and apartments, done in a centralized manner, have completely eliminated losses, which had reached 18 percent when the wallpaper was prepared by hand.

The Zhdanovstroy Multipurpose Flanging Press developed by inventors in the combine's UPTK [not further identified] is designed to manufacture all types of window and balcony drip molds, overflows, covers, wall-type and suspended gutters, coursed pavement, straight air-duct sections and other items made from roofing steel. The machine's potential for manufacturing a broad products list of items is ensured by the versatility of its plunger die and the speed and ease with which its interchangeable rollers can be readjusted.

On order from construction organizations, the combine UPTK has used a prototype of this machine to manufacture and supply construction projects with 100 tons of various items in 1980 and 129 tons in 1981. A total of two tinsmiths have been employed in manufacturing these items.

Concentrating work on manufacturing items from roofing steel at the combine UPTK production - set-assembly base has permitted significant improvement in the organization of steel processing and layout, utilization of valuable material scraps, better product quality, an end to primitive work methods, squeezing out manual labor in tinning, reducing production noise, freeing workers for use in

other jobs, and an eight-fold improvement in labor productivity. The annual economic impact of introducing one multipurpose flanging press has been 26,000 rubles.

The Lithuanian SSR Ministry of Construction has presented exhibits covering leading experience in operating the latest production - set-assembly center of the Vil'nyusstroy Trust UPTK, which is equipped with the last word in world-class science and engineering. This center supplies the projects of 18 construction administrations, with a total work volume of about 60 million rubles, with components, items and materials. The center includes shops manufacturing laminated double glass pane, cutting glass, manufacturing marble dust, fusing linoleum, cleaning and welding pipe.

The Vil'nyusstroy Trust UPTK uses 5,700 standardized containers of eight types and 2,700 pallets. The PKB has introduced a new method of warehousing materials and items in containers and on pallets in honeycomb shelving. UPTK workers have achieved high production, storage and warehousing standards, even for items such as PKB work clothing, which is stored in containers, hung on "armlet" hangers.

The level of loading-unloading work mechanization has reached 95 percent and the level of containerization -- 85 percent. Given a 16.6 percent freight turnover growth over five years, the number of workers at the center was increased by only 7.8 percent.

The attention of visitors to the exhibit is drawn to a model showing an organizational-technological resolution of a sector for cutting out plate glass which is based on use of a flow-line - conveyor method of performing glass work and which was developed by the Makeyevka Engineering-Construction Institute and introduced at the UPTK PKB of the RSFSR Ministry of Rural Construction's Orelsel'stroy Trust. Process centralization, mechanization and automation, optimization of plans for cutting out plate glass, full utilization of scrap, and stacking technologically fully-prepared, tinted and glazed window sashes has permitted a more than two-fold increase in labor productivity, raising the level of work mechanization to 65 percent and reducing glass scrap to 2.1 percent and dye expenditures by 20 percent.

Materials devoted to the problem of developing containerization and palletization in construction, to which ministries and departments pay a great deal of attention, occupied a large place in the exhibit. Thus, thanks to the introduction of through container shipments, USSR Ministry of Industrial Construction organizations have reduced losses of materials and items from 1.5 to 10 percent, lowered transport idle time during loading and unloading by 15-20 percent and obtained an economic impact totalling 15.9 million rubles during the 10th Five-Year Plan. Each year, 13,000 - 14,000 pieces of containerization and palletization equipment are series-manufactured in a centralized manner at specialized plants; the total fleet of such equipment has risen to 70 percent of the calculated demand.

In the USSR Ministry of Construction, the volume of container and pallet shipment rose from 4.3 million rubles in 1976 to 6.4 million rubles in 1980 and comprises 31 percent of the total freight shipment volume. During 1975-1980, losses

of materials dropped from 1.5 to eight percent thanks to containerization and transport idle time during loading and unloading work was reduced by 10-15 percent.

In the Glavmosstroy, the container fleet includes 17,000 containers and 5,000 pallets. Deliveries in containers, on pallets, in stacks and in nonreturnable packaging had increased as follows in 1981 as compared with 1971: wallpaper -- from 6.6 to 11.3 million square meters; roofing materials -- from 29,000 to 564,000 m^2; cut rolled metal -- from 1,000 tons to 1,200 tons; commercial chemicals such as paints, oils, glues -- from 42,700 to 45,000 tons; PVC slabs -- from 19,000 to 40,500 m^2; rubbish chute shafts -- from 17.9 to 22 standard km; parquet boards together with sleepers and baseboards -- from 500,000 to 1,207,000 square meters; hardware and electrodes -- from 1,700 to 3,800 tons. The economic impact of containerization in 1981 alone was 1.5 million rubles.

Materials on the new methods of preparing construction production as they pertain to production-technological set assembly demonstrate the achievements of science and practice along two lines: the compilation of reports on the demand for material resources as part of planning documentation and the development as part of work plans of UNTD's [not further identified] on set-assembly, which is the basis for the economical expenditure of material resources. These represent a complex of normative and methods documents developed along these lines by the USSR Gosstroy NIIES [Scientific Research Institute of Construction Economics], jointly with the ministries and departments, including GOST [All-Union State Standard] 21.109-80, "Statements of Materials Requirements," departmental instructions on developing USSR Ministry of Construction UNTD's (VSN 66 161-75), USSR Ministry of Industrial Construction UNTD's (VSN 27-76), the same for the USSR Ministry of Construction, but using computers (VSN 66 197-76), as well as "Methods Instructions on Operational Planning of Set Assembly in the Construction-Installation Trust on the Basis of UNTD's" (Moscow, Stroyizdat Izd-vo, 1977) and "Methods Recommendations on Developing and Using UNTD's When Changing Cost Accounting Brigades Over to the PTK [not further identified] System" (Moscow, Stroyizdat Izd-vo, 1981).

According to NIIES calculations, a material resources savings amounting to 0.1 percent of the demand for them at construction projects can be achieved by introducing demand statements as part of planning documentation, and an annual economic impact of about 0.25 percent of the construction-installation work volume in the introducing organizations can be obtained as a result of introducing UNTD's under brigade contract conditions.

Given universal application of the integral-process brigade contract, introducing low-level UPTK structural subdivision cost accounting is an important factor in saving material resources in the supply sphere. The USSR Gosstroy NIIES has developed and is displaying at the exhibit the basic and supplemental planning indicators. Amounts of complete-set delivery, output manufactured and increased level of technological readiness in a consolidated products list are recommended as basic indicators, along with calculated outlays, including wages, and output per brigade worker. The procedure for awarding bonuses to UPTK workers under brigade contract conditions has been worked out.

Jointly with the UkSSR Ministry for Industrial Construction, the NIIES is conducting an experiment in the Vinnitspromstroy UPTK on changing UPTK brigades

over to contracts. Systems for planning brigade work and material incentives for UPTK workers are being worked out. According to preliminary data, introduction of the brigade contract in the UPTK will permit a total reduction in materials expenditures of more than 500,000 rubles per year. The experiment continues.

The results of introducing the latest and most progressive developments in the field of computer applications in material-technical supply and the provision of construction with complete sets found reflection in the exhibit. As practice has shown, the creation of ASU's [automated control systems] has become a reliable direction in which to plan the efficient use and expenditure of material resources. Of greatest interest among the works offered at the exhibit are the ASU KROS (an automated system for providing construction sites with complete sets of prefabricated reinforced concrete based on UNTD's), the ASU KOMPAS and the ASU ZhBI.

The ASU KROS was developed by the PTIOMES [not further identified] and the IVTs [Information and Computation Center] of the USSR Ministry of Construction's Glavprivolzhskstroy, jointly with the USSR Gosstroy's NIIES. It is designed for annual, quarterly and monthly planning of set assembly in a republic construction ministry, territorial or main construction administration, and permits the comprehensive resolution of questions of manufacturing prefabricated components with consideration of an efficient load on production capacities and their optimum distribution among trusts, construction administrations and construction projects of transport and set-assembly with minimal outlays in accordance with the technology and installation schedules. The economic impact of introducing the system is one ruble per cubic meter of prefabricated reinforced concrete. As a result of introducing the system in the Glavprivolzhskstroy, excess prefabricated components were reduced by 7,500 m^3 and in the Glavverkhnevolzhskstroy -- by 11,000 m^3. Up to 2,400 tons of cement and about 400 tons of metal were saved.

The ASU KOMPAS was introduced in 1976-1981 in the Vladimirskiy TUS [not further identified] of the USSR Ministry of Construction. The purpose of the system is to balance the requirements of construction organizations for prefabricated reinforced concrete items with the plan assignments of construction industry enterprises, given an efficient load on manufacturing plants, and to organize the delivery of complete sets to construction sites. The system encompasses the complete-set delivery of 250,000 m^3 of reinforced concrete per year, as well as paneling and laminated-plaster partitions. Its economic effectiveness is 200,000 rubles per year.

This section concludes with materials on improving the system of norms and normatives on materials expenditure. It describes the organization, methods support, automation and effectiveness of developing project norms of materials expenditure per million rubles of estimated construction-installation work cost, as well as the structure, organization and development stages of materials expenditure production norms.

It presents a complex of normative and methods documents prepared by the NIIES and published by Stroyizdat on these questions, including "Temporary Methods Instructions on Selecting Representative Projects" (Moscow, NIIES, 1981),

"Methods Instructions on Determining Indicators of Materials and Items Expenditure Per Million Rubles of Estimated Construction-Installation Work Cost" (Moscow, NIIES, NIIPiN, 1980), "Methods Instructions on Determining Indicators of Pipe Expenditure" (Moscow, NIIES, 1982), "Methods Instructions on Determining Expenditure Norms for Insulating Materials, Components and Items" (Moscow, NIIES, VNIPI Teploproyekt, 1978), "Methods Instructions on Preparing Input to Calculate Indicators of Materials and Items Expenditure Per Million Rubles by Computer" (Moscow, NIIES, 1980), as well as a number of handbooks of project norms by branch of the national economy and industry and handbooks of general production norms on materials expenditures for the following types of work: stone, finishing, road, installing monolithic reinforced concrete and concrete components, installing internal sanitation-engineering systems.

The annual economic impact of using project norms is 0.7 percent of the estimated cost of construction-installation work and is calculated to reach 0.5 billion rubles in 1985. The economic impact of introducing production norms is more than 30 million rubles per year.

Extensive familiarization of specialists in the field of construction and its material-technical supply with the materials of this section of the exhibit and studying the posted literature on questions of interest could be of practical assistance in the universal introduction of innovations presented at the USSR Exhibit of National Economic Achievements.

Economy Efforts At Donbass Enterprises

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[Article by M. L. Finkil'shteyn, chief engineer at Zhdanovstroy Combine (UkSSR Ministry of Construction of Heavy Industry Enterprises), and candidates of economic sciences D. L. Breytus, department head at Makeyevka Construction Engineering Institute, and I. A. Katyushin, docent at that institute, under the heading "Saving Resources in Construction": "Reserves for Using Material Resources Economically in Construction"]

[Text] Many construction collectives have accumulated considerable positive experience in the efficient, economical use of labor and material resources. However, as was noted in the CPSU Central Committee and USSR Council of Ministers decree "On Intensifying Work on Saving Raw Material, Fuel, Energy and Other Material Resources and Using Them Efficiently," the necessary breakthrough has not occurred in improving the use of material resources as a whole.

As the work experience of Donbass construction organizations demonstrates, this breakthrough cannot occur through isolated, although perhaps important, measures, but only given the simultaneous solution of a complex of technical, organizational and economic problems ensuring a reduction in the expenditure of resources. Thus, successful coping with the task of using resources effectively and economically is being resolved at the Zhdanovstroy combine of the UkSSR Ministry for Construction of Heavy Industry Enterprises in all the main stages of construction: the design, planning and production of construction-installation work and the release of projects for operation.

Combine construction-installation organizations also approach the resolution of this task comprehensively, not just looking at the necessity of saving material resources only during construction-installation work right at the construction site. In order to do this, they have chosen such directions of struggling for economy and thrift as optimum planning and balancing the capacities of construction organizations with the work program, careful analysis of estimate-planning documentation, the development of proposals on introducing progressive space-layout and structural resolutions, researching the potential interchangeability of scarce materials and items, introducing lightweight components and local materials, improving the transport, storage and processing of materials, working to use resources economically at the construction site, and so on.

In view of the fact that the effective use of all types of material resources is largely determined by optimum construction production planning, the Zhdanovstroy combine worked out a plan for the collective's economic and social development in the 11th Five-Year Plan, breaking down assignments by year, including those on saving basic raw and other materials and fuel-energy resources.

The table gives indicators for saving basic materials and fuel-energy resources with consideration of the additional socialist obligations of combine subdivisions in 1981.

resource	1981 economy assignment	counter plan for the year	saved in 1981	assignment fulfillment, in percent
rolled metal, tons	880	900	1,058	120.2
cement, tons	200	210	210	100
lumber, square meters	250	260	264	101.5
boiler-furnace fuel, tons of conventional fuel	141	141.7	141	100
thermal energy, GCal	635	751.3	922	122.7
electric energy, 1,000 kw-hr	272	299	347	116
diesel fuel, tons	--	50	50	100
gasoline, tons	--	20	20	100

The use of counter planning, optimization methods and variant calculations permits an efficient distribution and redistribution of resources among construction-installation organizations and projects under construction and ensures the most optimum distribution of resources to obtain the maximum commodity construction output volume. However, this very important advantage of optimum planning often cannot be realized due to the late or incomplete submission of estimate-planning documentation. Thus, in 1981, agreements for 330,000 rubles worth of construction-installation work were not concluded in the Zhdanovstroy combine due to a lack of documentation, and documentation for work costing several tens of millions of rubles was received by construction sites several months late. This in turn had a negative effect on the formation and reliability of initial information when developing the comprehensive engineering preparation of production (KIPP) plan and calculating the annual program in accordance with the production capacity of construction organizations.

The use of norms of materials expenditure per million rubles of construction-installation work to calculate the demand for material-technical resources

yields only rough data which cannot be used for specific construction projects. The approximate data in initial information obtained before the start of plan development and the consolidated materials expenditure norms being used in its development not only fail to satisfy construction organizations, but are a definite brake on the effective, economical use of resources. When developing the production engineering preparation plan, the demand for material resources is often approximated using reporting data for the preceding year and relying on preliminary work volumes and estimate normatives (which are averaged), which does not provide an objective representation of the needed amount of resources for the year, much less by quarter or month. In our opinion, in view of the fact that there will continue to be delays in receiving planning documentation, it has become necessary to develop dynamic norms which, with consideration of the branch and type orientation of construction work, could be used not only to plan the demand for resources, but also to write off the cost of work done. This would facilitate in considerable measure further improvement in recording and reporting materials savings and reducing the difference between limits and actual expenditures.

Definite shortcomings are inherent in the very approach to planning assignments on saving basic materials: they are planned "from above," as a function of the level achieved the previous year. Such a planning procedure does not take into account advances in the work structure, the directions of scientific-technical progress or the interchangeability of materials and components. In order to take them into account, in our opinion, we need to use a differentiated approach to shaping assignments on saving resources. This is confirmed, in particular, by data on counter planning in the above table. Due to changes in the composition of the projects and the work structure since the previous year, opportunities for economy were limited in 1981 for a number of material resources. This applied to cement, lumber and boiler-furnace fuel, and the assignments set for other types of resources turned out to be slack and were therefore significantly overfulfilled. This was associated with the lack of methods permitting consideration of the opportunities of construction organizations and changes in the resources structure when working out plan assignments.

In our opinion, it is necessary to create methods instructions which anticipate planning resources savings based on data obtained "from below," that is, from construction-installation organizations, which must determine their proposals on the basis of work plans, organizational-technical measures plans, with consideration of production norms for expenditure of materials. In this regard, it would be most appropriate to operate with relative, not absolute, values which are not yet linked in any way to the structure of construction-installation work and the production capacities of construction organizations prior to compilation of savings assignments.

In our opinion, it has also become necessary for each construction-installation trust to work out its own comprehensive target program for saving material resources which takes into account technical progress, changes in the composition of construction projects, and scientific developments in the institutes. Such long-range programs and special measures worked out by the trusts would be practical reinforcement to the assignments and then to work results in the effective, economical expenditure of resources.

A creative engineering approach by construction-installation organizations which is aimed at perfecting the estimate-planning documentation obtained is of important significance in the matter of saving resources. Thus, the use of a number of improved structural and space-layout resolutions proposed by its workers in the Zhdanovstroy combine has enabled them to save significant amounts of metal, cement and lumber. For example, the use of a lightweight shaped steel decking frame in building metallurgical plant shop roofs in place of prefabricated reinforced concrete slabs lowered metal expenditure by 19 tons; the use of concrete rammed piles in punched wells instead of driving piles enabled one plant shop to reduce metal expenditures by 12 tons; replacing metal water pipes with plastic reduced metal expenditures by 70 tons; introducing prefabricated monolithic foundations using standardized perforated units at a number of industrial projects ensured a savings of 69 tons of cement; using polyvinyl chloride materials for floor coverings permitted a savings of 77 m^3 of lumber, and so on.

Planning organizations have not always used effective components in their planning resolutions. It seems to us that the rights and role of construction-installation organizations in coordinating estimate-planning documentation should be broadened. For example, when planning the most materials-intensive subassemblies and components, we should organize contests and involve representatives of general contractor and subcontractor organizations, as well as the client, and use an effective system of incentives.

It should be noted that, in spite of the importance of comprehensive engineering preparation of production in questions of the economical expenditure of resources, the role of the construction-installation organization and its workers consists foremost in the efficient organization of construction production so as to ensure a thrifty attitude towards the materials, fuel and other items being used. This concerns the work of each member of the collective and each brigade, which are obligated to ensure resources economy at the construction site and reduce nonproductive resources expenditures due to work being done over, due to poorly organized materials and items deliveries to the job site and a lack of proper monitoring and recording of the resources being expended.

One important direction in which material resources are being saved in construction is the reduction in project materials-intensiveness, which permits achieving not only a direct savings in materials expenditures, but also a significant reduction in building and structure weight and thus a reduction in the labor-intensiveness of construction-installation work, and also bringing the start-up of production capacities and projects closer together. This is being achieved by improving planning resolutions aimed at the use of lightweight components, modularizing buildings and reducing the number of elements, siting a number of production facilities in multistory projects without basements, and installing equipment in open yards. Experience shows that these resolutions alone permit a 12-15 percent reduction in materials expenditure.

We need to sharply reduce the number of type-sizes of parts and components being used in industrial construction; that number has reached 4,000 items at individual projects. We can save up to five percent of the metal, three percent of the cement and eight percent of the lumber just by unitizing and standardizing existing component type-sizes.

Reducing the materials-intensiveness of parts and components and expenditures on their manufacture and assembly is facilitated by improving their structural shape, consolidating them prior to shipment to construction sites, increasing their degree of factory finish, and also be replacing expensive, scarce materials with less-expensive ones without lessening the quality of the components and parts.

Among the progressive planning resolutions which lower materials-intensiveness in construction, we should note the use of short anchor bolts in building and technological equipment foundations, which eliminates the use of surface casings and lowers metal expenditures by an average of up to 50 kg per bolt and lowers the time involved in concreting foundations.

One very effective measure permitting a reduction in the materials-intensiveness of construction is the utilization of scrap and reprocessing substandard prefabricated reinforced concrete items for reuse when manufacturing components and for use as aggregate in monolithic concrete items, but this requires preliminary substantiation as concerns establishing the sphere of effective application of such scrap.

Actualization of the above measures, as well as the use of other possible reserves such as heavy brand 500, 600 and other concrete, for example, would enable just the Zhdanovstroy combine to save a total of 40,000 rubles for each percentage point reduction in material-technical resources expenditure and a 1.5 to two percent reduction in labor expenditures in construction-installation work. Metal is being used unnecessarily in plating when installing technological pipe and reinforcing steel overexpenditures are common due to the lack of needed sections, and this not only increases the cost of construction, but also delays the release of progressive reinforced concrete components and increases the materials-intensiveness of buildings and structures.

Particular note should be made of the necessity of conforming to construction-installation production technology. Losses due to failure to follow construction norms and regulations, technical requirements and specifications ensuring high-quality work are very high. Violations of construction-installation production technology lead to repeated plastering of walls, the installation of components deviating from specification, which then require additional work and the expenditure of additional materials, an increase in the thickness of leveling tie rods, uneven brickwork, requiring additional resources to correct, and so on. It should be added to this that the quality of components and parts being produced by construction industry enterprises with deviations from planned dimensions is often low, requiring additional work at the construction site and losses of material resources in transport and storage. That is a list of the basic reserves in the sphere of construction production whose use could save significant amounts of material resources.

Leading experience accumulated at the Zhdanovstroy combine in installing unique ferrous metallurgy facilities shows that use of these reserves by workers in planning organizations, scientific research institutes, construction and installation organizations permits a significant reduction in materials-intensiveness and overall expenditures in construction production.

One important link in work on saving material resources and using them thriftily is careful economic analysis of their expenditure, which begins with the materials expenditure norms being used. Estimate norms of materials expenditure are averaged, developed for long periods of use and based on comparable production norms of materials expenditure. For many materials, the differences in these norms are 6-10 percent one way or the other. The indicated analysis of materials expenditures must therefore be done using only production norms for materials expenditures.

In connection with the increased products list of construction-installation work, the labor-intensiveness of recording the use of materials in comparison with production norms for their expenditure by line workers in construction organizations has also risen. This is important work which is not always monitored, sometimes providing an opportunity for writing off materials above the accepted norms or using overstated norms. A positive appraisal should be given to proposals directed towards creating a complex of measures putting this work in proper order. These include: introducing norm-limit documents on materials expenditure, as well as set-assembly reports which will permit mechanization of recording and monitoring and improvement in their reliability. This work is already being done in Donbass construction-installation organizations.

It has become necessary to establish a precise system of material incentives for all links of construction production management which will ensure fulfillment of assignments on saving materials and fuel-energy resources.

With a view towards ensuring saving a significant portion of material resources in construction, we think it necessary to include in the technical-economic indicators of projects being planned their materials-intensiveness. This indicator would facilitate the more efficient use of resources and, together with the system of material incentives, would increase the responsibility of planning organization workers for reducing the weight of buildings and structures. The quality of planning resolutions in terms of this indicator must be determined through comparison with materials-intensiveness indicators adopted for the base [indicators].

As was noted at the All-Union Scientific-Practical Conference on Saving Material Resources in Construction, there are large reserves for saving resources in using the brigade contract. Many brigades provide a savings of up to two percent of the brick and mortar and up to five percent of the lumber. The collectives of Zhdanovstroy combine brigades led by N. I. Zhernovyy, N. K. Antonenko and N. P. Bablyuk, which use the brigade contract method, have very high achievements in saving material resources.

Efficient organization of concrete and slurry shipments yields a substantial savings in resources. At the Zhdanovstroy combine, deliveries to construction sites are made in cement haulers and mixers, which permitted a reduction in cement expenditure of 375 tons in 1981.

As the work experience of the Zhdanovstroy combine shows, substantial successes can be achieved in the effective and economical use of material resources by carrying out special measures, introducing the proposals of combine workers and systematically monitoring the economical expenditure of resources. The combine

has been rendered definite assistance in this by scientists, and in particular, by those at the Makeyevka Construction Engineering Institute.

Successful work in saving material resources is facilitated by serious preparatory and organizational work. Thus, all combine subdivisions and 71 percent of the workers in them have taken an active part in the All-Union Contest-Review for the Effective Use of Materials and Fuel-Energy Resources.

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LEGAL COORDINATION OF UNITIZED CONSTRUCTION ADVOCATED

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[Article by G. Shmal', deputy minister for construction of petroleum and gas industry enterprises: "Unit-Set Method: Development and Legal Provisions"]

[Text] Unit-set construction means not just a new technology and labor organization, but also a fundamentally new and highly effective production process in which elements of construction, industry and transport merge into one, in which coordinating the activity of different enterprises and, consequently, legal provisions on the resultant relations are very important.

The unit-set method is one of the forms of organizing capital construction which largely determines the level and rates of development of our national economy.

Speaking at the 18th Komsomol Congress, Comrade L. I. Brezhnev said, "Let's take the unit method of construction.... Its essence is that many industrial facilities are fully manufactured in rear bases, in plant shops; the units are then shipped to the site, over any distance, and installed.

It has been estimated that this method permits a four-fold increase in labor productivity in the development of Siberian deposits. And this means a savings of thousands or even tens of thousands of workers."

The lead organization in introducing this method has been the "Sibkomplektmontazh" association created in Tyumen', whose general director I have been in recent years. It consists of a complex of plants and set-assembly enterprises, a trust for making up complete sets, mobile set-transport columns to deliver items from the plant to the construction site, and installation subdivisions completing the construction conveyor by assembling technological systems. The primary task of the association is to develop petroleum and gas fields, to install compressor and petroleum pumping stations on main pipelines. It is right here that the advantages of the unit method are manifested -- high speed and the potential for sharply reducing construction time. More than 200 complete-unit plans for individual installations and industrial complexes have already been implemented. These include compressor and oil-refinery, seperator and cluster pump stations, boilers, several types of electric power plants, treatment plants, transformer substations, communications centers, refrigerator units, dining halls, and so forth.

During the 10th Five-Year Plan, projects with a total cost of more than two billion rubles were put up using this method for petroleum and gas industry. According to USSR Gosstroy Scientific Research Institute data, the national economic impact is more than 400,000 rubles per million rubles of construction-installation work. The high proportion in the total volume of construction of completed projects also indicates the effectiveness of this method. Thus, as of 1 January 1981, the volume of incomplete construction was less than 44 percent of the total association construction-installation work volume, while nationwide that figure exceeded 130 percent.

Over the past 10 years, Tyumen' builders have generally put up facilities within the schedules established by the plan, with a significant reduction in normative installation time. As compared with the 9th Five-Year Plan, construction duration had been reduced an average of 2.5-fold in the 10th, permitting, in turn, Tyumen' Oblast petroleum and gas workers to regularly overfulfill petroleum and gas extraction assignments.

Neither should we fail to mention one other important argument in favor of this method. With the traditional forms of construction organization, we would have had to attract an additional 60,000 - 70,000 workers to Tyumen' Oblast. The unit-set method enabled us to restrict ourselves to 28,000. And nearly half of these are working at enterprises in the established centers, primarily Tyumen'. This has made it possible to reduce expenditures of funds on creating a social infrastructure for Tyumen' construction subdivisions by 1.1 to 1.2 billion rubles, since 20,000 - 25,000 rubles must be spent per worker in the Ob' petroleum area to create working conditions. The figure is 28,000 - 30,000 rubles in the gas regions of the North, as against 5,000 - 6,000 rubles in Tyumen'.

In recent years, many unit-set construction elements have been widely introduced in other petroleum and gas extraction regions of the country, enabling us to avoid the creation of an expensive construction base in weakly developed areas. Unit-set construction has not only become a mainline direction of USSR Ministry for Construction of Petroleum and Gas Industry Enterprises technical policy, but has been elevated to statewide rank. The "Basic Directions of USSR Economic and Social Development in 1981-1985 and Up To 1990" states: "...develop the following progressive forms of construction organization in every way possible: unit-set, 'special-effort' [vakhtovaya], subassembly [pouzlovaya], and others."

This year, the CPSU Central Committee has reviewed the activity of the USSR Ministry for Construction of Petroleum and Gas Industry Enterprises and adopted a decree "On Ministry for Construction of Petroleum and Gas Industry Enterprises Work on Retooling and Introducing Progressive Methods of Construction Production." It contains provisions directly concerning the unit-set method of construction. Incidentally, negative, as well as positive, aspects of introducing this form of work organization have been noted. Thus, the CPSU Central Committee focused attention on the fact that "there are shortcomings in the use of the unit-set method of construction," that "the primary duty of the Ministry for Construction of Petroleum and Gas Industry Enterprises...is to expand scientific and production activity on the complex of technical progress questions, to continue perfecting the unit-set and other highly effective methods of construction."

This decree has become a subject of careful study and review in the collegium of the Ministry for Construction of Petroleum and Gas Industry Enterprises. We have outlined the directions of further development of the unit-set method of construction, emphasizing that "increasing the effectiveness of industrial facility construction, reducing the time involved 1.5- to two-fold, will be done primarily by broadening the scope of and further developing the unit-set method of construction."

In the final year of the 11th Five-Year Plan, projects costing a total of a billion rubles will be put up using this method. For the "Sibkomplektmontazh" association alone, the program for such construction will have increased more than 2.5-fold in 1985 as compared with this year. We have also set ourselves the task of extending the unit-set method to the construction of civil projects.

This will be one condition of successful fulfillment of the taut five-year plan for builders of subsurface mainlines. And it really is not one of the easier plans: in the 11th Five-Year Plan, we are faced with laying 61,500 km of pipeline, including 43,000 km of mainline, and upwards of 20,000 km will use 1,420-mm pipe, as against the 9.800 km laid in the 10th Five-Year Plan. And the volume of industrial pipeline at oil and gas fields will be increased two-fold over the preceding five-year plan.

There are also legal measures ensuring continued dissemination of this method. Thus, the Ministry for Construction of Petroleum and Gas Industry Enterprises collegium has ordered the "development and introduction of special provisions regulating the economic and legal relations among organizations installing projects using the unit-set method."

Incidentally, back in December of last year, the Ministry for Construction of Petroleum and Gas Industry Enterprises approved a regulation, "Features of Legal Support for Interrelationships Among Participants in Unit-Set Construction," in which relations among subdivisions of the ministry itself are regulated. This is a very necessary and important document. In particular, it establishes the procedures and times for concluding subcontractor agreements, the services of the parties (lead installation organization, general contractor and subcontractor), provision of planning documentation, interrelationships both when preparing unit items and when installing projects, payments and calculations, property responsibility of the parties, that is, it covers the entire complex of interrelationships into which subdivisions conducting unit-set construction enter. True, we emphasize, this applies to subdivisions related basically to a single ministry, the Ministry for Construction of Petroleum and Gas Industry Enterprises.

And in fact, enterprises and organizations of other ministries and departments are also engaged in unit-set construction. And there is thus far no normative document which would regulate the relations of all parties.

Today, no one would deny that the new method is capable of being of maximum benefit in any region and any branch. However, the picture is different in practice: the new method has no opponents, but not that many allies either. Further, the USSR Gosstroy, which is obligated to be an impassioned propagandist for and organizer of the introduction of everything new, has been involved with

the unit-set method only on a voluntary basis. All such questions have been transferred to the coordinating council created on Komsomol Central Committee initiative, which has limited its activity to a couple of meetings. It would seem that the USSR Gosstroy needs to take this matter into its own hands, not on a voluntary basis, but as mandated, concentrating the direction of improvement in this method in one of its own subdivisions.

Another problem not solved within the association or ministry framework is the interbranch standardization of unit installations and equipment. Unit boxes and other items are currently being adapted to the equipment usually supplied oil and gas field workers. But the unit method is basically their standard construction method, which means that those same machinebuilders must manufacture less-bulky, more-productive equipment which would suit the builders, rather than the supplier plants. Equipment is now being manufactured on demand by the client, who is basically pursuing operating goals. But construction conditions? We do need to bear in mind making installation easier and minimizing construction work volumes. But when these questions are posed, both the client and the machinebuilder answer as one: "Why us?" It would seem the regulation on legal support for the unit-set method which will be developed by the Ministry for Construction of Petroleum and Gas Industry Enterprises must take into account the interests of all parties participating in construction using unit-set method principles. For the time being, though, "Sibkomplektmontazh" plants, working from blueprints of dozens of planning institutes, are forced each year to master about a hundred new units, many of which differ neither in purpose nor in capacity. For example, seven or eight electric motors of identical power are being supplied.

Standardization is an urgent task of unit-set construction. It would seem appropriate for the USSR State Committee for Science and Technology and the USSR Gosstroy to work out and approve a comprehensive target program for introducing unit-set construction which would anticipate the creation of equipment suitable to this particular method, release of the needed materials and rolled metal sections, a review of design norms, and so on.

Neither should we ignore the absence of a unified scientific policy in the construction branches. Today, no one in the country is engaged in centralized research on the most significant and pressing of their problems. And in fact, how can they be solved successfully if construction science is sprinkled among dozens and hundreds of institutes in various departments?

Many normative documents also need replacing. But thus far, the actions of designers and builders have often been directed by norms and regulations which have not been rescinded although they have long been obsolete. And, incidentally, they are sometimes so vague that dozens of variants are proposed when putting up identical facilities. How else to explain, for example, the fact that more than 10 petroleum pumping station designs were proposed for construction of the Surgut - Polotsk oil pipeline? Incidentally, they were developed by branches of the same institute. Even partial standardization of these designs would have yielded a savings of upwards of three million rubles.

And if one looks more closely at the general plans for comprehensive gas preparation installations and compares the technological framework for repressuring

station units, one can see how many as yet unused reserves for reducing construction time and cost lie literally "on the surface." There is also great disagreement on recommendations on using lightweight components, special steels and various other materials. Dozens of dissertations have been defended on these and other questions, but there is no final variant suitable for practical application. Much depends on the caprices and skills of the designers.

Many problems concern construction site leaders today. The number grows year by year, apparently because, among other reasons, there is not yet one agency to plan and coordinate scientific research in construction. Let me note that medicine or agriculture, for example, receive recommendations from their corresponding academies of science. Perhaps the time has come to revive the Academy of Construction Sciences as well? It could then determine, jointly with the USSR State Committee for Science and Technology, the basic, mainline directions of branch development and a comprehensive program for it. A leading subprogram would have to be construction industrialization, including the extensive introduction of the unit-set method into production.

Construction in general, and the unit-set method in particular, are being hampered by poor project engineering preparation, although all the textbooks, regulations and, above all, common sense recommend beginning the work precisely with this. Both the general contractors and the planning agencies are to blame. As is known, the USSR Gosplan strictly monitors construction, allocating funds in strict accord with the normatives. At the same time, engineering preparation of all construction sites remains apparently unsupervised. And although the funds for that are not all that great, delay in granting them sometimes translates into high losses. It would be proper to open a titles list of preparatory work for construction sites which are complex in engineering or environmental terms, so the Stroybank would have the right to finance them.

Special mention should be made of the role, powers and responsibilities of the client. He is allocated the money and the project is built for him. He would seem to be the person most concerned. Unfortunately, that is far from always the case. And the new economic mechanism hardly touches the client; it does not increase his responsibility for putting the project into operation, for the quality of the documentation, for the technical level of planning resolutions, equipment delivery, and so on. At the same time, work schedules, cost and quality depend largely on the position and enterprise of the primary managers of the construction project. One would think these questions would also be cleared up in the appropriate normative documents.

The birth of the expedition - special-effort method of work organization has been a natural consequence of introduction of the unit-set method into industrial construction; it permits work in remote and newly-mastered regions of the country using mobile units stationed in settled areas and regularly traveling in shifts to construction sites. The scope and effectiveness of introducing this method depend on the availability of legal and economic principles for its application. The issuance of a "Standard Regulation on the Special-Effort Method of Work Organization In Enterprises and Organizations of Petroleum, Gas and Timber Industry, Construction, Geological Surveying and Rail Transport," which was approved by the USSR State Committee for Labor and Social Questions and AUCCTU Secretariat, with the concurrence of the USSR Ministry of Finance, this year was therefore very timely. This is a very necessary regulation, since

it regulates relations arising in the expedition - special-effort method, which is used by tens of thousands of builders in the Ministry for Construction of Petroleum and Gas Industry Enterprises, as well as geologists and timber industry workers, and provides them a reliable lever for broad introduction of this method and for increasing its effectiveness.

The construction production management system also needs substantial review and legal support, in our view. The "Sibkomplektmontazh" association is the only construction subdivision in the country working under a two-link system whose nucleus is complete-set assembly enterprises and mobile installation columns of an administration, each of which has an annual work volume of 10-15 million rubles. Subdivisions are highly mobile here and there are opportunities for concentrating resources and flexibly maneuvering them when resolving target tasks. The most important thing in this structure is the fact that the column and administration leaders pay primary attention to the labor collectives, that is, directly to production. As a result, 60 percent of the association's work is done by the brigade contract method, and more than 80 percent of that by large, multipurpose brigades with work volumes of 1-3 million rubles per year. In our opinion, this system of construction production management, like the special-effort method of work organization, needs appropriate legal support.

The "Sibkomplektmontazh" association has now begun introducing a new generation of units, so-called "superunits." A separator pump unit at the Lyantorskiy deposit has been manufactured and installed in this variant. It is a three-story metal structure housing the pump unit, technological tanks, pipelines and shut-off - regulation apparatus. It weighs about 400 tons. In the 11th Five-Year Plan, the association will begin building gas-processing plants using large units (80 meters long, 18 meters wide, 16 meters high and weighing up to 1,200 tons). The purpose of changing over to superunits is to raise the level of facility factory finish, that is, to further reduce labor expenditures at construction sites under the conditions found in the North. The superunit variant is the most effective embodiment of the unit-set construction method concept: shifting a maximum work volume from field conditions to factory conditions.

However, extensive introduction of the superunits into construction practice is being hampered by transport limitations. Such units can be delivered only during the navigation season and from rivers to installation sites only in the winter using a specially prepared winter road. Due to this, we lose a potential opportunity for sharply reducing the time involved in putting projects into operation. This is why we need to develop and manufacture new means of transport with load capacities of 1,000 to 1,200 tons for the natural and climatic conditions of Western Siberia.

The creation of special dirigible-type means of transport represents a cardinal resolution. In combination with the superunits, they would permit easier mastering of complex regions and the introduction of appropriate adjustments into plans for developing the country's productive forces.

Extensive introduction of the unit-set method, setting up flow-line installation, expedition - special-effort work, the brigade contract -- all this is not an end in itself. It requires daily work on our part, and it requires party and government decisions: not words, but the actual concentration of resources on start-up

projects, a reduction in construction time and amounts of unfinished construction, the prompt putting of fixed assets and production capacities into operation.

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CONSTRUCTION MACHINE PRODUCTIVITY LAGS IN GEORGIAN SSR

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[Article by Emzar Gaprindashvili, candidate of economic sciences, chief of the Construction Department, Scientific Research Institute of Economics and Economic Planning of the Georgian SSR Gosplan: "Limited Working Time of Construction Machinery Reduces Efficiency of Primary Production Funds"]

[Text] The task set by the 26th CPSU Congress of further increasing the efficiency of capital investments requires improvement in the use of primary production funds in construction, and most of all in their operating part--construction machinery and mechanisms.

In recent years, continual growth has been taking place in production funds used in Georgian SSR construction. From 1970-1980, those primary production funds earmarked for construction, of the republic's state construction and assembly contractors, grew 2.5 times, and the level of capital equipment on hand increased 106 percent. At the same time, growth in the amount of construction funds is economically justified, as a rule, only if its growth rates do not exceed the rates of work completed. As analysis shows, in many construction organizations and in the republic as a whole, the tendency has been observed for the growth rate of funds to exceed that of completed construction and assembly work. This has led to reducing the output per unit value of primary production funds in construction, signifying the presence of significant reserves in utilization of machinery and mechanisms.

Construction sites in our republic are gradually turning into installation and assembly sites where many types of work are completed using highly productive machinery. Nevertheless, 50-55 percent of construction workers are engaged in manual labor. This is the reason for the task of equipping construction with means for mechanizing accessory and auxiliary works.

In recent years, downtime of machinery and mechanisms for the republic as a whole averaged 30 percent of their operating time. It must be added that the utilization factor of small power tools for plastering and painting averages 50 percent or less.

One of the reasons for downtime of machinery and mechanisms is their lengthy repair period--10-25 percent of the machine-days. This stems primarily from

inadequate capabilities of enterprises, and the lack of a sufficient quantity of spare parts. It is true that from 1970-1981, performance per unit of capacity of principal construction machinery increased, especially in the Georgian SSR Ministry of Construction. Nevertheless, the annual performance standards for machinery per unit of capacity are still not being achieved in the republic's construction organizations. This is explained primarily by the low time sharing factor of construction machine work.

Principal construction machinery must operate no less than two shifts per day. In fact, during 1981 principal construction machinery on the average operated daily: in the Georgian SSR Ministry of Construction--12 hours, and in the Georgian SSR Ministry of Agricultural Construction--11.8 hours. The corresponding time sharing factors were 1.5 and 1.48. Similar indices for specific construction machinery were less than the indicated averages. Machinery downtime during a shift is high, especially during the second shift. Frequently it reaches 25-30 percent of the shift. Reasons for downtime are: lack of working space at some construction sites; interruptions in obtaining materials, designs and parts; violations of labor discipline, etc.

The increase in prefabrication and mechanization in the construction industry, and other factors which increase efficiency have allowed a significant increase in labor productivity in construction, as a result of which the number of workers engaged in construction and assembly jobs and subsidiary production is gradually being reduced. It is intended that future planned construction and assembly work will basically be implemented with no additional allocation of workers.

The main reserves contained within industry for reducing the value of primary production funds per unit of production in construction, and for increasing the level of profitability, are in the opportunities for improving the utilization of construction machinery in terms of time and productivity. The daily utilization of construction machinery may be increased by increasing the number of shifts of daily, and consequently annual, machinery operation. This increases the output per unit value of primary production funds, and the profitability of the primary production funds, thus having great economic effect. Moving from one to two shift operation reduces the per shift cost price of machinery by 15-20 percent on the average. The per shift machinery cost price for cranes declines 20-40 percent when going to two and three shift operation.

The optimum average calculated time sharing factor for construction machinery overall should be no less than 1.56. Optimum average time sharing factors for principal construction machinery are significantly higher. Approximately a 20 percent increase is required just to bring the time sharing factor of the republic's construction to 1.56. Improving the utilization of construction machinery during shifts by 15 percent, and increasing the time sharing factor by 20 percent, reduces the duration of construction projects by 12-15 percent. The overall annual cost price savings from reducing the duration of construction projects and the annual expenditures for operating construction machinery, and improving their utilization, will equate to approximately 1-1/2 percent

of the completed amount of construction and assembly work. In the Georgian SSR this will enable 15-20 million rubles worth of additional construction machinery to be produced, and permit an annual savings of 10-15 million rubles.

The effective use of the primary production funds designated for construction enables additional products to be obtained from the same capital investments, and in a shorter period of time. In addition, it is the direct route to reducing expenditures for operating the machinery park, reducing the cost price of construction, and increasing profitability of the construction industry.

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